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**Claire Lee Chennault:
Theorist and Campaign Planner**

**A Monograph
by
Major John M. Kelley
Aviation**



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**School of Advanced Military Studies
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Fort Leavenworth, Kansas**

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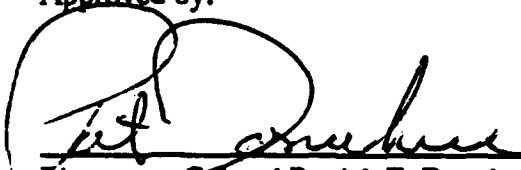
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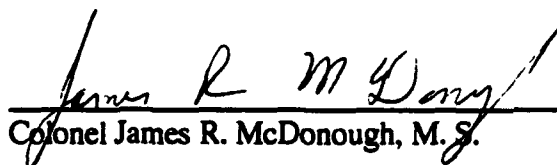
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ABSTRACT

CLAIRE LEE CHENNAULT: THEORIST AND CAMPAIGN PLANNER

by MAJ John M. Kelley, USA, 57 pages.

This monograph examines Claire Lee Chennault as a military theorist and campaign planner. It inquires whether Chennault's evolution of a theory of war assisted his planning the China-Burma-India Campaign during World War II.

The monograph is divided into four sections. The first section focuses the historical background of Chennault and the war in Southeast Asia, emphasizing the war in China as this is where Chennault preponderantly fought from. In addition, it identifies the aims of the major belligerents of the Sino-Japanese War and why the Chinese actions were important to the Allied cause. The second section explores Chennault's theory of war. This section explores how he developed his theory of war and the theory itself. The third section analyzes how Chennault's theory met the Chinese and American ends (desired end state), means (application of the available resources), and ways (resource employment to achieve the ends). The fourth section concludes that Chennault's theory of war assisted him in planning the China-Burma-India campaign during the Second World War.

Two functions precipitated from Chennault's theory of war. First, his theory clarified the past and the present; notably the Great War and the airpower's technological evolution. Second, it assisted Chennault to foresee the future. The future was realized because Chennault transcended the theorist role to that of an operational commander. His theory fostered an operational concept, the war of mobility, which developed into a fighting doctrine. With these resources and the invaluable contributions of the Chinese peasants, Chennault devised a method of employment that maximized the contributions from all the means. Chennault rationally created a campaign plan designed according to his theory.

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I. INTRODUCTION

At every crossing on the road that leads to the future . . . each progressive spirit is opposed by . . . a thousand men appointed to guard the past. **Maurice Maeterlinck**

Between 1937 and 1945 the world's attention was riveted to the battlefields of Europe and the Pacific. Yet, there was a theater of war in China and Southeast Asia that was a fight for survival for the Chinese and Japanese. While other nations such as Italy, Germany, France, and the Soviet Union eventually departed the theater for other battlefields, the United States and the British stayed the course for the duration of the war. Yet, the United States and the United Kingdom scarcely agreed on a common goal while campaigning in the theater.¹

Whatever the sensibility of the divergent execution of the United States/United Kingdom Southeast Asian strategy, the China-Burma-India (CBI) Theater contributed to the ultimate defeat of Japan. The allied successes in the CBI were all out of proportion to their meager costs. The addition of the allies to the theater prevented Japanese expansion into the Indian Ocean and, more importantly, kept China in the war. A large portion of the credit for the allied success in frustrating Japan's designs in the CBI Theater rest with Claire Lee Chennault, "The Flying Tiger."

Chennault is renowned as a practitioner of aerial warfare in China. He did not command the theater--the Chinese, Russians, British and Americans had their own command structures. Yet, he was largely responsible for the campaign through his advice to Chiang Kai-shek, and the precedent established for the allies when the US and UK entered the theater at "half-time."² His Fourteenth Air Force, really no larger than a composite wing, had an impact against the Japanese disproportionate to its modest size.³ His 308th Bombardment Group had the highest accuracy of any B-24 group.⁴ His 23d Fighter Group had the greatest number of aerial victories of any US fighter group.⁵ His early warning net saved countless American and Chinese lives by giving them time to reach air raid shelters. His fliers held the record for the number of repatriations after a shoot-down or ditching.⁶ Chennault's intelligence net (precursor to the OSS Asian operations) continued to aid the Nationalist Chinese against Mao's communists. One of Chennault's Civil Air Transport planes was the last aircraft to deliver relief supplies to the besieged garrison at Dien Bien Phu.⁷ The CIA eventually purchased his fleet and incorporated the clandestine air service into its operations.⁸ Back in the dark days of December 1941, his Flying Tigers were one slender thread of Allied hope.

Chennault's public legacy is that of the Flying Tiger, but there was much more to the man. From 1937 until recalled to the Army in April of 1942, Chennault was Chief of Staff of the Chinese Air Force (CAF) and subordinate to Chiang Kai-shek.⁹ From his observations of the German, Italian, British, Russian, Chinese, and Japanese methods, Chennault deduced their fighting strengths and weaknesses. He was responsible for assisting Chiang in achieving Chinese strategic goals and, after recall and promotion to Brigadier General, he was responsible for assisting the US in achieving its strategic aims. While he remained true to his President and country, Chennault's wisdom, foresight, and insatiable desire for achievement eventually collided with the Army leadership.¹⁰ This conflict drove him to his third retirement from the Army and he departed China on August 8th, 1945.¹¹ By this date Chennault had long proven and vindicated all his theories of war.

While his mastery of aerial warfare is legend, Chennault's scholarly excellence is lesser known. As a boy he became well versed in ancient history and the American Civil War. He received a formal education of the times, but his best education was first self-taught from the experience of self reliance, and later, from diligent study of his beloved profession. As a lieutenant in Eddie Rickenbacher's old "Hat in the Ring" Squadron, he quietly learned dogfighting in 1920 from World War I aces Majors Carl Spaatz and Frank Hunter (later, Chief of Staff of the US Air Force and Commander of the Eighth Fighter Command, respectively). Chennault quickly realized that the dogfighting tactics of the Great War were relics of the past. He called it "superb sport," but not war. Dogfighting had "too much of an air of medieval jousting . . . and not enough of the calculated massing of overwhelming force so necessary in the cold, cruel business of war."¹² Dogfighting dispersed force and firepower. In 1933 he predicted that the next war would open with a vigorous, concentrated air offensive.¹³ Chennault was rapidly formulating a mental compendium of tactics, doctrine, and operations to exploit this new weapon.

Chennault's numerous articles, his school text, his testimony dating from his instructing at the Air Tactical School (ATS), and his memoirs, Way of a Fighter, reveal a great military theorist. Since the publication of his first articles while department head of the Pursuit Section in the ATS and his criticism of the Douhet bomber advocates, his critics were out to destroy him. Several writers tried to disavow both Chennault and his war record.¹⁴ He was accused of disloyalty to country, insubordination, black marketing, profiteering, sexual impropriety, lying, sloppy staff work and

undisciplined units, and even of fighting under an assumed name. Leaving the myths and his detractors behind, we shall concentrate upon the man's words and actions. It clearly becomes evident that Chennault was a genius in aerial warfare and a superb military theorist, doctrinaire, and a joint and combined operational artist.

This monograph analyzes Chennault as a theorist and campaign planner. It will explore the development of Chennault's theory of war. The paper will resolve the question: Did Chennault's development of a theory of war assist him in planning the China-Burma-India campaign during World War II?

The monograph has four sections. The background section establishes the historical framework for Chennault's professional development, his understanding of war, and the CBI theater. The war in China is emphasized in this section as this is where Chennault primarily fought. The theory section establishes the relevant Army theory of war at the US entry into the war. The evidence for this section relies heavily on Chennault's pre-war writings and testimony. These writings introduce Chennault's theory of war and its evolution. The third section describes and then analyzes Chennault's desired end state (defeat of Japan), his means (his requested, projected, and use of actual theater resources), and his ways (application of his resources toward achieving his desired end state). The final section answers the research question and offers implications for military theorists, operational artists, and doctrinaires.

II. BACKGROUND

CLAIRE LEE CHENNAULT

In time of war the rebel against accepted doctrine who wins is decorated, promoted, and hailed as a great military captain, but in time of peace the nonconformist is looked upon as a troublemaker. He is seldom marked for promotion to higher rank and is generally retired or induced to resign.

General George C. Kenney

Like the Phoenix, Chennault rose from the ashes of rejection and his second forced retirement to become "Old Leatherface" of the Flying Tigers, but his accomplishments were not only based upon his flying skills. Chennault fostered the myth that he was unprepared for the war in China. Madame Chiang asked him to organize a combat mission when he had been in China less than two months. Chennault wrote that he started planning for the war with "only the vaguest knowledge of the two opposing forces."¹⁵ The facts are different. No one was better prepared to fight the Japanese from such an austere theater, to project intellectual capital into aerial warfare, and to see the mission through with a titanium constitution regardless of the setbacks.

Chennault was a consummate, open minded, professional educator with the right balance between theory and practice. He was in his element when he worked independently. Alone, he would quickly estimate a situation and take action. He became defensive when asked to explain his thoughts or actions. It is this trait which eventually caused him difficulty with superiors.¹⁶ At six years of age he spent nights alone in Louisiana's wild Tensas River country gaining self-confidence and the ability to make his own decisions. Chennault recalls that he "pored over history books in my grandfather Lee's library reading about Peloponnesian and Punic wars."¹⁷ He also read his father's books on Plutarch, Hannibal, Sam Houston, Stonewall Jackson, and Robert E. Lee. His early and sustained interest in history, geography, and mathematics allowed him to complete three grades in one year. Even his first interest in the Bible was not based upon faith but an interest in Biblical history. His earliest military training occurred as a cadet at Louisiana State University, although he graduated from Louisiana State Normal School to qualify for the teaching profession. He mastered several teaching jobs. In April, 1917, he enlisted, and soon was a "ninety day wonder" Infantry Lieutenant dourly drilling aviation cadets. After four rejections, Chennault was accepted into flight school and earned his coveted pursuit pilot wings.¹⁸ His unit was enroute to France when the Great War ended. Eventually, Chennault was assigned to the "Hat in the Ring" Squadron at Brooks Field, Texas. Here he quickly experimented with his new tactics. Chennault later reflected that the happiest days of his Army career were from 1923 to 1926 while stationed at Luke Field, (Ford Island, Pearl Harbor) Hawaii.¹⁹

Chennault's familiarity with the Pacific theater and the Japanese threat matured during his three years as commander of the 19th Pursuit Squadron at Luke Field. There, Chennault's embryonic concepts of an early warning net, fighter squadron doctrine and tactics, the geopolitics of the Pacific basin, and his criticism of the Army Air Corps' "canned" exercises developed. In hindsight it is odd that the US military's use of an early warning net should arise from a lieutenant's placing two observers with binoculars atop the Pearl Harbor water tower during exercises and alerts in the mid-1920's.²⁰ Japan's reaction to America's passage of the Oriental Exclusion Act of 1924 motivated Chennault to put his squadron, without higher directives, on alert and conduct armed patrols for six weeks -- sixteen years too early.²¹

Chennault carefully trained his squadron in the mass attacks he had visualized in 1919. During wargames, the 19th Squadron's attacks were so successful that the Navy sent representatives to copy the tactics while the Army commended Chennault for authoring a tactical manual. Sadly, the air arms did not adapt the tactics until well into

World War II. This solid tactical foundation, matured by time as an instructor back at Brooks Field, added to Chennault's intellectual capital.²²

Lieutenant Colonel (later Major General) John F. Curry recognized Chennault as the Air Corps' best pilot and chose him to lead the Army's precision flying team, the Three Men on a Flying Trapeze. Curry saw the team as an Army promotion. Chennault used the team as an opportunity to practice and promote the fighter theory he developed independently. Chennault later learned that many of his tactics were pioneered earlier by Oswald von Boelcke, the German World War I ace and father of fighter tactics.

Chennault summarized the tactics using the military truism that the "difference between the firepower of two opposing forces--all other factors being equal--is not the difference in number of fire units, but the square of the difference of the number of fire units."²³ This meant that two-fighters attacking one enemy had odds not of 2 to 1, but of 4 to 1.

Chennault perfected the tactics of aerial mass and teamwork by connecting his three planes together with ten foot strands of rope. Chennault, William MacDonald, and John Williamson then amazed crowds by flying their attached planes as one through violent maneuvers without cutting the ropes.²⁴ In addition to teamwork and formation tactics against bombers, Chennault was analyzing how to solve the extremely time-sensitive intelligence problem of bomber detection and interception.

Over the next seven years, Chennault refined his theory and doctrine while a student, instructor, and department head at the ATS. In addition to these duties and leading the Flying Trapeze, he immersed himself in the study of warfare. At ATS, faculty and students debated theories of war, airpower's merit, the Billy Mitchell affair, and the theories of Giulio Douhet.²⁵ He studied the failings and the promises of the World War and there he discovered von Boelcke and Richtofen. He learned that upon Richtofen's death, a pedantic airman named Herman Goering undid his predecessor's teamwork. Chennault was surprised to find that the ATS taught the newest and most theoretical precepts of massive bombardment but was teaching fighter doctrine of 1918.

Never one to pale from expressing his opinions, Chennault quickly immersed himself into a two-front theoretical battle. First he locked arms with his Air Corps brothers arguing for a decisive role for airpower in the heated debate between air and ground commanders. In this debate his actions were short, but decisive in ruining a normal career. He first irritated Army Chief of Staff Major General (MG) Summerall, and then MG C. E. Kilbourne. His testimony to the Howell committee of the Federal Aviation Commission criticized restrictions placed upon the maneuvers of 1934 and the maneuver's author, MG Kilbourne. Weeks after the testimony Chennault's name was

removed from the Command and General Staff College list for the class of 1934-35.²⁶

In the other theoretical battle he disputed Douhet's theories with the bomber advocates who dominated the Air Corps.²⁷ The great questions were; what type of an air arm should a nation have; wholly offensive type (bombardment), balanced (airplanes of several types in ratio to each other), or mostly defensive (fighters)? What was the role of ground defenses? Can fighters intercept and defeat bombardment with any certainty?²⁸ Chennault debated the merits of early warning, observation, bomber interception, and destruction in the ATS, through testimony, and in numerous articles published in the professional periodicals of the 1930s. Nevertheless, the Douhet supporters won the debate of the decade. The pursuit tactics class was irrelevant for three years and fighters drifted into the doldrums.²⁹ Championing a balanced approach to a theory of war, Chennault used the principles of former great battle captains to advocate roles for ground and air observation, pursuit, and bombardment. Chennault argued himself into exhaustion and into a corner, finding himself *persona non grata* in both the Army and its air arm. He was dejected that the only sympathetic ear for his theories were the Russians and the Nationalist Chinese. He had seen the writing on the wall regarding his career and was bitterly disappointed.

With his ideas rejected by the Army, Chennault accepted early medical retirement on April 30th, 1937 and the next day he departed to complete a three-month survey of Chiang Kai-shek's air force.³⁰ Chennault foresaw the coming US conflict with the Japanese and thought that he could contribute to his country's cause through the Chinese. He had paved his way into China by exchanging letters with Billy MacDonald, his old Flying Trapeze wingman. MacDonald and Williamson were working for a company which trained a small part of the CAF. Chennault would fight the Japanese from China for the next eight years, prove his theories, help the US adopt his doctrines, and support US strategy.

THE WAR IN CHINA AND SOUTHEAST ASIA

China [is] a nation "of the lower strata of life" with no vital spot whose capture would end the will or capacity to resist. Tokyo newspaper complaint

Chiang's intent and action were to maintain the delicate balancing act among China's warlords, Chinese communists, Russians, Germans, Italians, and Americans to use the resulting confederation to expel the Japanese.³¹ In 1927, with China and Japan as enemies, Chiang identified the communists as the mortal threat. The fledgling Nationalist

Chinese Army elicited assistance from the German advisors and sent the communists on their long march.³² The German and Italian advisors, and Russian advisors with hundreds of pilots and over 400 aircraft, allied with Nationalists to equip and train Chiang's air arm.³³ Nationalists, warlords, and communists agreed to disagree for the time being and to fight the common Japanese foe. The Japanese soon took exception to the German involvement in China and convinced the Germans to leave by July, 1938.³⁴ The Russians remained to fight the common Japanese enemy until Russia was imperiled by the Germans on their western front in 1942.³⁵ The peak Russian advisory effort included over 1000 planes and over 2000 pilots, in rotation.³⁶

The feuding Chinese factions were temporarily unified by Japan's 1931 occupation of Manchuria, gnawing invasion of China's northern provinces, and the incident at the Marco Polo Bridge on July 7th, 1937. Prior to the invasion triggered by the customs incident at the Marco Polo bridge, "Japan [had] increased her position on the Asian mainland by every possible means short of war."³⁷ By December 7th, 1941, Japan controlled 95 percent of China's industry, one-fourth of her area, and ruled half her population.³⁸

Even though united under the Nationalists, China remained a confederation of rival warlords who were responsible to raise and equip their own armies.³⁹ Chiang was a powerful individual, but his power came from balancing the opposite, distrustful poles of the confederation and a common enemy, not from national referendum.⁴⁰ Chiang could not forget that after defeating "the disease of the skin," the Japanese; he would have to defeat "the disease of the heart," the communists.⁴¹ Yet, for the first time in modern history, China was "united."

Chennault sailed from the US aboard the *President Garfield* and debarked at Kobe, Japan, where he was met by McDonald. They toured Japan for several days in late May of 1937. Their sightseeing, note taking, and photography focused on ports, harbors, shipping bottlenecks, military posts, airfields, and war industries. The two "tourists" arrived in Shanghai in early June, 1937. Years later, Chennault was surprised that his notes and photos "contained more information on Japanese targets than the War Department's intelligence files."⁴² The department's files were so void that in the spring of 1942 Lieutenant Colonel James Doolittle canvassed American firms with Japanese ties to secure intelligence prior to his famous raid.

The plight facing Chennault in China was pathetic. In Shanghai, he immediately met William H. Donald and Madame Chiang Kai-shek who both would help him. Donald, an Australian, "knew the power politics of Asia as few men ever will."⁴³

Madame Chiang was in charge of the Chinese Air Force (CAF). Nanking, in the summer of 1937, was a political hotbed with student protests against the Japanese. Reports flowed in from the north about Japanese soldiers abusing the Chinese. The invader's army also demanded to train and garrison their troops on Chinese soil. Chennault began his survey of the CAF weeks before the Japanese invasion.

The CAF was a danger to itself. The Italians, under General Scaroni, had the largest training contract that cost the Italians nothing and simultaneously funded expansion of the Italian's aircraft industry. The organization was corrupt. Every pilot who survived the Italian flying school earned his wings, regardless of ability.⁴⁴ This Italian method saved the Generalissimo embarrassment from "politically reliable" parents of cadets, but ruined the air force. Chennault found that on paper the air force had over 500 planes, but only 91 were ready for combat. Chennault saw that the Italian trained pilots were a menace to aviation. Pilots crashed doing basic maneuvers and had up to five accidents per day. Madame Chiang and Chennault stood and watched as five Italian-trained pilots crashed while returning from a mission in the summer of 1937. The Italians were far more interested in making money than in raising and training an air force.

With the notable exception of a small German trained force of 300,000, China's Army was conscript, without adequate equipment and training. Chiang's German advisors, led by General von Faulkenhausen, did outstanding work. They overcame some of the same astonishing difficulties that Chennault faced, such as incomplete cooperation, widespread illiteracy, and outdated industry. The Germans successfully created a strong Central army and China's general staff.⁴⁵

As the Japanese invasion rolled south from 1937 to the end of 1938, Chennault witnessed the largest mass exodus in history. People moved banks, 400 factories, libraries, and their society, including 40,000 university students, into the interior of China to flee the Japanese aggressor.⁴⁶ In one year the capital of Chungking grew from 200,000 to over one million as the province grew from 50 million to over 200 million.⁴⁷

The 1940 fall of France and the Netherlands provided Japan with new fields for easy conquest in Indo-china.⁴⁸ After Thailand's surrender on December 8, 1941, Hong Kong capitulated on December 25, 1941. The Japanese moved into British Malaya, producers of half the world's rubber and a quarter of the tin. In April, 1941, Chennault and Arthur N. Young, financial advisor to China, studied probable Japanese lines of operation into Burma. When Young presented the project to the Allies they scoffed that

an invasion through the impenetrable jungles would be too hard.⁴⁹

Dating from the 1900's, the US policy toward China had been commercial and not political, but the Japanese expansion began changing the old political realities. American attitudes did not change until the Japanese expanded into the European colonies of Southeast Asia and culminated with the raid on Pearl Harbor.⁵⁰ President Roosevelt "planned to treat China like a great power."⁵¹ In China he saw an emerging major political power. He viewed Chiang Kai-shek as his counterpart and the vital, major leader who eventually unified China. America would give Chiang all the aid America could spare to defeat the Japanese aggressor. Roosevelt knew that aid would be meager as the US vital interest lay in Europe and in the Central Pacific. Chiang had 3.8 million men in his army but they only had a million rifles.⁵² In July, 1941, Roosevelt approved the clandestine creation of three American Volunteer Groups (AVGs) and a bomber force totaling 500 airplanes and other military aid for China. Shortages of planes and pilots meant that Chiang only received 99 planes before December, 7, 1941. This postponed the allies plans to bomb Japan from late 1941 until the spring of 1942.⁵³

III. THEORY

Chennault was the great advocate of pursuit aviation. He carried the ball, almost boringly so. He was a pain in the ass to a lot of people. He did turn out to be quite right, as many people who are pains in the ass do. LTG Pete Quesada

In 1940 and 1942, Chennault authored his strategy to defeat the Japanese. In both cases the Army decried it while the politicians embraced it.⁵⁴ His plan was to attack the Japanese with a small air force based in China. Japan, void of any natural resources, was dependant upon seapower to sustain herself, her industries, and to then project her domination over the Pacific and Asia. Chennault's plan was to maintain the tactical defense while taking the strategic offensive through projecting air power and, later, sea power against the belligerent's sea lines of communication and vital industries. He vigorously advocated the use of incendiaries against Japanese cities -- not in tacit approval of Douhet's theory, but rather in a real appreciation gained from incendiaries' offensive destructive power observed first-hand as the Japanese burned the Chinese "paper" cities. Six years later the Army arrived at the same conclusion and initiated the fire bombing of Japanese cities and industries using the 20th and 21st Air Forces.⁵⁵

Chennault's strategy threatened the Japanese lines of communication using a larger scale of the same type of operation that Captain Chennault criticized MG Kilbourne for not allowing in the 1934 wargames. Kilbourne prevented the air arm from

attacking the enemy when they were most vulnerable, on the ships. He also prevented the air arm from attacking the enemy while they disembarked their landing craft on the beach, when they were also very vulnerable. Further, he and many ground commanders of the time prevented the air arm from attacking the lines of communication and operation from the ships, to the beachhead, to the frontlines. The 1923 Field Service Regulations, which stated, "the ultimate objective is the destruction of enemy forces by battle," went largely unchallenged by the War Department until well into World War II.⁵⁶ The Army view of the air arm's role was limited to the immediate support of ground forces at the point of contact.

Chiang's and Chennault's thoughts were in concert because Chennault was a meticulous observer and fought in China years before the American entry into the war. Chennault realized that Chiang faced a greater battle after the war with Japan in continuing to unite China under the Nationalist flag. Chiang likewise became a great believer in airpower for two reasons. First, he saw what it could accomplish even in small numbers when skillfully handled both by Chennault with the CAF of 1937-38 and the Russian squadrons aiding the Nationalists. Secondly, Chiang became a believer largely by being victimized by its effects almost daily from 1937 through 1941. His interior wartime capital of Chungking became the most bombed city in the world from 1937 until well into the war when London and Malta stole the infamy.⁵⁷

Chennault saw no value in routing the Japanese from Burma, Siam, and French Indo-China. The Japanese, in essence, had become prisoners of war in the Southeast Asian jungles much like the "conquering" Turks in an earlier war on another continent became prisoners within their conquests of Mecca and Medina to T. E. Lawrence and the Arabs.⁵⁸ Chennault advocated letting the Japanese Army swelter in the jungle by cutting their sea lines of communication with allied air and sea power.⁵⁹ General MacArthur came to the same conclusion regarding frontal jungle assaults against the Japanese after his experience at Bougainville where his losses exceeded those sustained earlier at Guadalcanal.

Chennault had the ends and the ways, he merely needed the means to prove his theories and to defeat Japan. Acquiring and husbanding the means to conduct war were hallmarks of Chennault's warfighting. A casual observer can retort that it is obvious that every commander needs the means to conduct war, but being the smallest air force in the largest geographical theater of war, Chennault's command became masters of improvisation.

Chennault was assured. Chennault had a penchant for letting experience be his teacher of choice. He was not beyond learning from others as long as their conclusions were grounded in experience and logic. He had long come to terms with the differences in World War historical facts, post-war exercise results, logic, theory, and the conclusions which the military authorities drew in the 1930's. On many issues he agreed with their conclusions while on others he took issue.

What makes Chennault's theories cogent is that he published them long before the war provided a unique opportunity to prove them on the battlefield and during the campaign. Afterward, he was able to synthesize them in his memoirs and articles. With his history and military theory foundation, he keyed in on two ideas. The first idea was the destructive potential of the bomber in trained hands and second was the theoretical imperative for a balanced air arm. Regarding the bomber, he wrote that it is "strictly an offensive weapon" and that "the greatest danger . . . lies in the possible failure of military authorities to appreciate its power."⁶⁰ Regarding the balanced air arm, he used his historical and theoretical background to attack the precept of bomber invincibility that had led the air arm to propose an unbalanced, bomber-heavy force.

Chennault noted that Douhet's bombardment theory made two serious assumption errors. The first error was that a nation would plan for a war of bombing terrorism, directing strikes against civilians " *while utterly neglecting all active defense against the same weapon in the hands of the enemy.*" Chennault stressed that it is the population of a state which wages war and that it is inconceivable that their government would only prepare for offensive war. The second serious assumption error of the Douhet theory is that the defense will culminate in its effort against the leading attacks of the enemy bombardment. " *Conservation of force is one of the fundamental principles governing the employment of military forces.*"⁶¹ The defense's ability to conserve resources is its great advantage. Planning to sacrifice this advantage by committing all defensive forces available against the leading offensive bombardment forces would be nonsensical.

When he penned The Role of Defensive Pursuit in 1933, Chennault noted the paradigm of warfare had changed markedly from previous wars. The stereotyped war formula had been in five phases. The first phase was distrust, breaking diplomatic relations, and declaring war. In the second phase armed forces would invade, and, third, armies and navies would fight. Fourth, after victory, armies would occupy the capital and industrial centers of the vanquished. Fifth, the peace treaty was signed.

Chennault noted that prior to and in the early years of the World War, individual citizens had little impact upon the war or peace but merely contributed taxes and men for the draft. The World War's stalemate and "next Great War" changed this equation to where the militaries alone could not win the war and "[millions of] people of the warring nations [would] become involved."⁶²

"The closing phases of the World War witnessed a war of populations." This was coined the "National Resistance" or "The Will of the People to Resist."⁶³ Chennault realized this was not wholly new, but that the coming great war would integrate all the means of the combatants. People throughout the depth of the country would be subject to combat effects as never before.

At the macro-level he predicted that ground engagements would "follow the general outline of the World War" with "long, laborious conflict, ending only when the resources of one nation have been exhausted." He concluded that there could not be a quick blow "to destroy the enemy's means or will to resist" since technology greatly increased the powers of defense.⁶⁴

Chennault noted that the air arm is personal and affects the morale of an entire nation more directly than other weapons. He cited the success of the British Royal Air Force in enforcing the political mandate over Mesopotamia as an example of the

effect of aerial action upon the morale or will-to-resist of a people. Operating against tribes with a widely scattered population living in caves; with no centers of industry, wealth or population; with no established routes of communication or lines of transport; it is a matter of record that every rebellious tribe voluntarily capitulated within a very short time. It has been generally accepted that the subjugation of a scattered population devoted to pastoral pursuits and inhabiting a rough, mountainous country with numerous natural caves offers the most difficult objective for an air force.⁶⁵

The Royal Air Force's freedom of maneuver negated all of the tribes' advantages. While Chennault reasoned that he was unsure if the air arm alone could be decisive, he also noted its historical power.

Chennault argued that the next great war would begin with aerial bombardment operations and that an attack was most likely at a remote installation such as Oahu or the Panama Canal, far removed from large concentrations of land-based aircraft.⁶⁶

Chennault notes that many theorists agreed that the air arm would be employed early and vigorously in the next conflict and that "practically all experts appreciate the value of the aerial offensive but added that very few have any real conception of the defensive."⁶⁷

Chennault organized his thoughts into separate strategies and tactical considerations. First he framed his thoughts around the broad framework of offense and defense. He wrote that the bomber was an offensive weapon and strengthened the offense more than any other weapon since the World War, but noted that in the defense "it fights *in its own element*."⁶⁸ Chennault argued that the offense was not limitless noting that the bomber will not always get through "*regardless of hostile opposition*." Chennault noted, that if true, bombardment's invincibility was the "first exception to the ancient principle that 'for every new weapon there is an effective counter weapon.'"⁶⁹

Paraphrasing Clausewitz, Chennault wrote:

Obviously, this lack of regard for hostile opposition is a theory which has no foundation in experience. Centuries of military experience on both land and sea indicate that the tactical range of any offensive effort penetrating hostile areas is limited by the amount and effectiveness of the defensive efforts that are opposed to it. Experience likewise indicates that the strength of the defense increases rapidly in proportion to the depth of penetration.⁷⁰

From this foundation Chennault proposed four planks for fighting the next war: First, protection of warring nations demands the use of integrated passive defense measures for both civil and military populations. Second, enemy detection must be achieved with a ground information or intelligence net.⁷¹ Third, enemy interception occurs when coordinated with the first two planks and the proper numbers and types of pursuit and bombardment weapons are used. The fourth plank was destruction of the enemy's bombardment, establishing air superiority, and destroying the enemy's means to wage war.⁷²

Protection through passive defensive measures, base and LOC defense, and mobility to neutralize the effects of hostile bombardment, was the first plank in Chennault's theory. He called for extensive protection taken by both civilian and military authorities. Chennault cited passive defense measures taken by some of the same European nations that professed the theory of the invincible bomber. Passive defense in Italy included sandbagging and using "sanitary and anti-chemical squads, and the operation of an ambulance service" all regulated and rehearsed. Detailed passive defense in France included "piecemeal removal of essential factories, and their rebuilding."⁷³ Base and LOC defense was an amalgamation of Chennault's tactical doctrine and Sun Tzu's deception and finesse.⁷⁴ Theodore White termed Chennault's genius for mobility as "flick and back, flick and back," as Chennault "flicks his bomber

force around like you'd flick a whiplash." ⁷⁵ Chennault often used Scipio Africanus's defense of Rome to portray the **protection** afforded by mobility. ⁷⁶

Detection and intelligence were the cornerstone of Chennault's theory. He extensively studied the defensive record of the World War. He wrote in Fighting for Observation, that before the World War the European powers did not think aerial observation was worth spending considerable money on. "There was no appreciation of the necessity for denying aerial observation to the enemy. Presumably, the enemy was welcome to all the information that his unreliable air service could obtain." ⁷⁷ Pursuit was born of the requirements to maintain observation and to deny freedom of action to the enemy's aviation. Ground force success became more reliant upon aerial observation, often finding that it was vital for success. The fight for it intensified.

Like the ground force's need for aerial observation, Chennault argued that the air arm is dependent upon the formation of an effective ground information or an intelligence net. He envisioned a sprawling, spider web like net with numerous ground observers and a central command post. Airborne pursuit alone would not suffice due to the limitless nature of airspace and the eye's difficulty with 3-dimensional viewing. It would result in the "exhaustion of the defending force with no commensurate return." ⁷⁸ Conversely, pursuit planes on the ground near the defended point are unable to intercept hostile bombers.

Effective defense occurs when the pursuit force meets and engages the airborne enemy well before the enemy reaches its target. Paramount importance is preventing the enemy from striking his target, of secondary importance is destroying the withdrawing enemy. The net must centralize its information for evaluation and to direct **interception** because the attacking bombers may change course, split or join flights from one reporting station to the next. Therefore reporting must occur at frequent intervals. Finally, evaluating the information occurs by trained, experienced personnel at a central command post. This single authority command post directs the **interception**, during daytime or at night using searchlights, all based upon the flight route and competent assessment of the probable target. Island or coast defense necessitates marine listening posts using "submarines" and boats of all types. ⁷⁹

He wrote that from the studies of the World War "the general average of experience . . . indicates that Douhet's doctrine of bombardment invincibility is sound." But his study of active and passive actions which some Europeans were writing about were different. Alone, the British decided that the pursuit plane had a role in defense of her islands. ⁸⁰ Chennault always argued that the Douhet theory was fatally flawed in that

the bombers could be detected and once detected, their target could be ascertained, and then the bombers could be intercepted.

He proved his theory for his own benefit in the 19th Pursuit Squadron, in his correct interpretation of the war games of the 1930's, and now he would be able to prove the detectability fallibility of the unescorted bomber in combat.⁸¹ Apparently, the Japanese had read and believed the Douhet theory for they used unescorted bombers almost exclusively from the 1931 occupation of Manchuria until August of 1937. It remained to be seen if the early warning net would work in combat.

Interception of the enemy bombers was the third tier of Chennault's theory. Once the enemy bomber fleet was detected, the fleet had to be intercepted. Chennault found that World War **interception** was due to luck or accident. Regardless, this left the pursuit with one method of attack, to close with one machine gun versus the bombers six or eight machine guns.⁸²

Chennault recorded from the Antiaircraft-Air Corps exercise at Fort Knox in 1933 that **interceptions** were made from information from the ground and air observers and from each source separately. Vectoring pursuit to intercept bombers by a direct route conserves the defensive effort. Placing the pursuit between the enemy's probable objectives and his invading force allows the pursuit to maneuver on shorter, interior lines.⁸³

Further economies of the defense are achieved by sending the minimum necessary force to disrupt each hostile attack. "Airplanes required to patrol areas where the enemy does *not* appear" are conserved and available for other missions. Pursuit operations using a "line of flight scheme of maneuver possess all the advantages inherent to the defensive attitude of any military force" by minimizing defensive effort while forcing the enemy to greatly increase his effort expenditure.⁸⁴

Interception before the fleet reached their intended target area was greatly preferable as it disrupted the attack. Chennault wrote;

1. Defending pursuit could make **interception** of attacking bombardment before the bombers reached their target if furnished timely information and if the **interception** area had sufficient depth to allow for necessary time factors.
2. Bombardment flying deep into enemy territory required friendly fighter **protection** to prevent heavy losses if not utter failure of the mission.⁸⁵

The main objective is the **destruction** of hostile bombers before bombs are dropped on their targets. The subsequent objective is the **destruction** of the enemy while attacking.

withdrawing, or on the ground at their own airfields.

Destruction of the enemy air force, key industries, and ability to wage war was the fourth element of Chennault's theory. Chennault used three precepts to show that defense against and **destruction** of enemy bombardment was possible. First, he used the weapon counter-weapon argument; second, he employed the concept of mass; and third, he used interior lines to argue that the bomber was not invincible. Using the weapon counter-weapon argument, Chennault showed that pursuit planes armed with .50 caliber machine guns had adequate standoff to destroy bombers. Using the theory of mass through teamwork, he advocated that three fighters attacking from three directions should concentrate their "total volume of fire while defensive fire from the bombardment formation must be dispersed in at least three directions." He added to his earlier use of interior lines for **interception** by writing that the leverage gained from fighting over friendly territory imposed little penalty in the downing of a friendly plane while the enemy plane and crew are removed from the enemy's order of battle. With this argument, Chennault "established for aerial warfare the well known principle that the defense is more economical than the offense."⁸⁶

Chennault did not discount the bomber's offensive utility. He wrote that the bomber's offensive effectiveness is maximized when it is used against, "industrial establishments, and lines of communication and supply which contribute to the enemy's ability and will to resist."⁸⁷ He argued that the nation's ability to wage war can be crippled and perhaps destroyed by an enemy employing a vast number of bombers "against factories, lines of communication, mobilization centers, centers of wealth and population, and harbors."⁸⁸

Chennault argued that the bomber was not immune from attacks from pursuit aircraft. In the 1930's it was a difficult position to take since the faster multi-engine bombers easily outpaced the pursuit aircraft of the era. Chennault urged development of a pursuit which could outclimb, outpace, and equal the range of the bombers so that it could be used first to destroy the enemy bombers and second to escort and protect friendly bombers. More than just a pursuit-bomber fleet, Chennault argued for a balanced air arm which included an early warning net and an observation fleet.

Chennault had no argument with bomber usage, for he used bombers with great skill in China, but he surgically attacked Douhet's apostles who claimed the bomber was an end to itself. In building his case for defensive pursuit, Chennault readily acknowledged that "whether an entire nation can be conquered by bombardment is a debatable question." Yet, he balanced his argument adding "a nation deprived of the

means for waging war will not maintain the desire to fight very long."⁸⁹ His argument for defensive pursuit used the military method of understanding a weapon's capabilities and limitations before constructing a defense against the weapon. During the process of advocating a balanced force he noted the bomber's limitations: airdromes, large supplies of armaments and fuel, corps of highly trained operators and mechanics, altitude, and visibility restrictions. Chennault also added some immediate challenges for pursuit:

... the use of emergency fields for war operations and the camouflage, defense and supply of those fields should be studied more thoroughly; communications should be studied with a view to reducing the time required for taking off on interception missions; point interceptions should be practiced; an information net controlled by the air force commander should be developed; marine observation-listening posts for use in defending seacoasts points should be developed.⁹⁰

Army Ground Forces and the War Department rated the destruction of the enemy army as above the other concerns, as recorded in 1923's and subsequent editions of Field Service Regulations. Chennault agreed with other theorists of the interwar years that the most efficient role for an air arm is not to be tied to the immediate ground battle. They argued that attacking enemy ground forces usually constituted the least remunerative method for employing bombers. The enemy ground forces disperse, use shelter, and maintain their morale during and after attacks.⁹¹ Even though the air arm can decisively contribute to the tactical ground battle, the greatest utility of the air arm comes from its inherent flexibility and ability to mass. As he noted after the 1934 maneuvers, the enemy ground force can be reinforced *ad infinitum* until the friendly combatants cut off the enemy lines of communication or, preferably, the enemy ability to wage war.

Chennault authored his theory from 1933 to 1936. He outlined his strategy for the theater in 1937. He authored his operations and tactics for the China theater in 1940. He refined these ideas with his observations of the Japanese, the capabilities of the Chinese and with the means at hand and those to become available in 1941.

In hindsight Chennault's theory appears almost simplistic for its logical construction. For years the best military minds argued over the merits of air power and its exploitation. Protagonists from the extremes of both camps staked out positions and defended them beyond the pale of evidence and logic. Chennault emerged from the debris of the debate with an intact theory of air power and with a theory for the prosecution of a war in the Chinese theater. He clearly synthesized and recorded his theory years before the conflict and then had the unique opportunity to test his theories.

Chennault's theories were developed from his thorough knowledge of military theory and from historical precedents. The principles of mass, speed, surprise, mobility, and shock action that he used extensively to argue for the formation of the AVG prompted presidential advisor Thomas Corcoran to tell President Roosevelt, "[Chennault] has strong opinions -- mostly about mobility -- but so did Stonewall Jackson and Hannibal he's always talking about."⁹² These arguments were critical to the establishment of the AVG and other aid for China.

Chennault distilled his theory through his practical experience at the 19th Pursuit Squadron, war games, the ATS, and as the supervisor of the Chinese Aviation Command from 1937 to 1941. These events forged Chennault's final tactics, doctrines, and theories. The use of these practical experiences for refining his theory were more important than the actual combat during the first stage of China's war. Chennault studied the combat answer to several bitter arguments that occurred at ATS: "offensive bombers did need fighter protection; with warning, defensive pursuit could offer effective opposition; bombardment did not bring an immediate end to resistance."⁹³ Chennault's theory allowed the Allies, with the least resources of any theater or sub-theater, to hamstring from one-half to one-third of the entire Japanese Army within the confines of China and Southeast Asia.

IV. CHENNAULT'S ENDS, MEANS, AND WAYS ANALYSIS OF THE DESIRED END STATE

The way to get things done is not to mind who gets the credit of doing them.
Benjamin Jowlett

Chennault focused his end state and his theory became apparent. He wrote:

My plan proposed to throw a small but well-equipped air force into China [protection]. Japan, like England, floated her lifeblood on the sea [detection] and could be defeated more easily by slashing her salty arteries [interception] than by stabbing for her heart. Air bases in Free China could put all of the vital Japanese supply lines and advanced staging areas under attack The first phase . . . [was] pounding the airfields, ports, staging areas, and shipping lanes where the Japanese were accumulating their military strength The second phase was . . . against the Japanese home islands [destruction], to burn out the industrial heart of the Empire with fire-bomb attacks on the teeming bamboo ant heaps of Honshu and Kyushu.⁹⁴

Chennault received four strategic directives which roughly coincided with his roles as advisor, commander of the AVG, China Air Task Force (CATF), and 14th USAF. He

received the first two directives while reporting to Chiang Kai-shek. The first three directives required protection of bases and lines of communication (advisor), the Burma Road (AVG), and the Hump route (CATF). (The Hump was the flight route over the Himalayans from India to China.) Additionally the directives ordered him to attack and destroy the Japanese and to support Chinese ground forces. Ultimately the directives changed little and aligned with a "long-range plan made by Washington staff in which China figured as the base for an eventual aerial offensive or a possible invasion."⁹⁵ Chennault's plan fit this concept but offered the potential of quickly and significantly striking Japan with a small force. To attack Japanese war industries from China he would first have to achieve air superiority over the Japanese, then defeat the Japanese sea lines of communication which transported all natural resources and then enabled Japan to consolidate and project her war industry. Japan would cease to exist as a power without the sea lines of communication.

Chennault's success was dependant upon three things. First, China had to stay in the war. This satisfied the negative aim of "depriving Japan of the advantages of her assistance" and the positive aim of providing "a base on the enemy's flank [on "an extended line of communication"] from which we could attack."⁹⁶ Second, he needed a secure base to receive supplies and replacements for Chinese industry had little to exploit. Third, Chennault needed temporary safe havens in the Chinese interior from which to launch his attacks against the Japanese.

The Chinese war aims were an insufficient basis for campaign development as Chennault was serving two to three sovereigns. While the Chinese had warlords, historically they were not an aggressive people and were not bent on conquering the world, or even Japan, but merely repelling the Japanese invasion. "China presented essentially a passive defense against aggressors--preferring to absorb them rather than actively defeat them."⁹⁷

The US policy was unconditional surrender but the Allies' end states were different. The Allies faced the necessity of reconciling their conflicting objectives from the start. The Americans felt it key that the Japanese were strongly opposed from China. The British wanted to recover their lost colonies-Burma, Malaya, Borneo, and Singapore.⁹⁸ China sought to evict the Japanese and then the communists. Therefore, it took two years to formulate the theater strategic goal that still remained unclear, divergent, and received lukewarm support from the US War Department.⁹⁹

Chennault became more frustrated with his roles. Chennault's chain of command was straight forward until his recall to the US Army in April of 1942.

Then it began to get very confusing. Some historical works use wiring diagrams "with different colors of ink in solid, broken, and dotted lines" to explain the chain of command Chennault had to work within and coordinate with for fighting, supplies, airspace, medical coverage, and other military necessities.¹⁰⁰ Through it all, Chennault never lost focus on the enemy and what President Roosevelt wanted done to the Japanese through the Chinese theater.

Roosevelt's specific request that from time to time Chennault write him to apprise the President of the status of the theater irked the War Department to no end. But this was vintage Roosevelt diplomacy which also often included sending special presidential envoys on fact finding missions.¹⁰¹ Thus, more clearly than probably any other subordinate, Chennault had a first hand view of the tremendous disjointedness in America's policy as established by her commander in chief and by the uniformed military that tried to implement that policy.

This disjointedness is most evident in the development and implementation of the theater strategy for Southeast Asia. The Combined Chiefs of Staff established the Southeast Asia Command at the Quebec conference in August, 1943, with Lord Louis Mountbatten as Supreme Allied Commander. The integration of US and British air units in India-Burma was agreed to three months later at the Cairo conference.¹⁰² The British still held hopes of colonial grandeur while the Americans, at least in the form of the commander in chief, wanted to use the theater to strike at the Japanese heart. After the fall of Rangoon, British and American interests diverged again. The British goal was to retake Singapore. The Americans wanted to exploit routes to China and assist in opening a seaport to the China coast.

The Chinese were perhaps the most disjointed of any ally. While they should have been fighting for their lives, they often fought the Japanese in an economy of force mode while keeping a jaundiced eye on their communist foe. This resulted in a US policy which claimed to use China to strike directly at Japan and her sea lines of communication but which, in practice, became subservient to desires to attack through the Southeast Asian jungles to reestablish the Burma colony--long after the Japanese Army was cut off from its sea and air LOCs and long after the frail Burma Road was reopened.

Chennault was forced to divert precious fighting resources to the jungle campaign, long after the fate of the Japanese Army was sealed and when he had far more lucrative targets in central and coastal China.

After the war the CBI Air Power Survey Board reported: At this point [the capture of Myitkyina, August, 1944] the conquest of Burma could have been terminated without affecting the outcome of the war--except possibly to speed up the Japanese collapse. The capture of Myitkyina afforded a low altitude Hump crossing, provided air transport staging bases and an oil head in Burma, halfway to China.¹⁰³

Chennault realized the tremendous mal-utilization of resources and men that the jungle campaign entailed and more importantly, just what could be accomplished if the effort were thrown toward Japan.

As a result, Chennault became identified with the Nationalist Chinese cause. The truth was that Chennault was using the Nationalist Chinese to fight the Japanese just as Chiang's Nationalists used the Americans to fight the communists.¹⁰⁴ Nevertheless, this symbiotic relationship furthered the **destruction** of the Japanese Army by tying down from one-third to one-half of their forces and enhancing the effectiveness of MacArthur's and Halsey's campaigns.

Chennault's challenge in campaign design was to: establish air superiority, attack Japan's lines of communication and then to attack the Japanese mainland. Simultaneously he had to support the US strategic goals and the often divergent operational objectives the allies pursued when they decided to purge the Japanese from the Burmese mainland. He attempted this with a society that tried, with mixed results, to transition from the bronze age to the industrial age.

ANALYSIS OF THE MEANS

You fly a P-40 with two hundred gallons of aviation fuel that last two and a half hours for five hundred miles When you . . . fill up with another two hundred gallons [you use] fifty-four gallon tins that came . . . across the 681 miles of Burma Road, or four fifty-five gallon drums from over the Hump. You burned up gas faster than all the Chinese can get it here to you [Look!] You won't see railroad . . . tank cars . . . or gas trucks . . . or any transportation. There'll be coolies rolling fifty-five gallon drums . . . from Kunming to Chanyi, almost a hundred miles [It takes coolies] forty days for those . . . drums . . . [to] move from Kunming to Kweilin to provide less than one full service for your ship. Sometimes you'll see two coolies carrying one drum slung on a gin pole between them--three hundred and fifty pounds of gasoline and fifty pounds of can That method [can take] seventy to seventy-five days. We have to wait a long time for a hundred thousand gallons to build up. [Then we have] barely enough for a full three-day mission for twenty-five fighter planes [or a one day mission] for a dozen medium bombers.

Chennault explaining the Chinese sacrifice to his Fighter Group Commander, 1942¹⁰⁵

With the end state defined, Chennault analyzed his means. The rapid Japanese advances during his first month in China surprised him for he thought he would have far

more time to train and prepare the CAF.¹⁰⁶ His study had two parts and was continuous over his eight-year fight. First, he determined the resources available, dividing them into human and equipment, and he determined the characteristics of each. Second, he tailored his well-defined operational concepts and doctrine to the people, equipment, and the theater. He used his theories to maximize the effectiveness of the resources. The theater possessed the means for Chennault to establish **protection** and **detection** but the Chinese desperately needed outside resources to mount any serious **interception** and **destruction**.

The numbers of Chinese volunteers were the backbone of the Chinese war effort. "[O]ne of China's harsh realities [was that] human life was the country's most abundant resource, to be sacrificed as necessary so that the life of the nation might go on."¹⁰⁷ Chennault credits Donald's "unstinting help and understanding" with his success in mastering the Chinese character. Without the help Chennault said, "no doubt [I] would have sailed home in disgust with a superficial Occidental contempt for the East." The schoolmaster found two challenges: teaching pilots and air defenders "who had never shot a duck to lead a moving target in the air," and building "runways without engineers or machinery."¹⁰⁸ Even with help from foreign missions and individuals, the progress was still slow. China lacked what plagued Chennault most--no mechanical or engineering background that gave western pilots and mechanics a grounding in fundamental skills. Chennault accepted China's backwardness and did not fault it, instead he adapted to their culture. He embraced some traits while "others appalled him. But he did not judge."¹⁰⁹

During the early stages of the Sino-Japanese War, the Chinese had some success. The German trained and equipped units fought well but when flanked in late 1938 it became evident that the Japanese advance could only be slowed, not stopped. In July of 1937, the Japanese sent unescorted bombers over Nanking three times in five days and suffered the **destruction** of 54 planes and crews. Three days later they repeated the attack at night but Chennault coordinated the searchlights and air defense [**protection**] to bag seven of the thirteen raiders [**destruction**]. By October the Japanese were sending a hundred planes a day over Nanking and were escorting their bombers. In one mission they shot down 11 of 16 Chinese fighters. Chennault noted, "with inferior planes and training and without replacements they were doomed to early extinction."¹¹⁰ Due to a lack of reserves, replacements, and ammunition, the Chinese exodus had begun.

By late 1938 continuous fighting decimated the good Chinese pilots. When the city of Hankow was captured in October, 1938, China's air force was a shell of fewer

than 25 planes. "Chennault had a high opinion of the ability of Chinese pilots when properly trained, equipped, and led. Beginning in 1938, . . . he could do little but plan for the future." He began a flight school at Kunming that fall to aid the rebuilding of an air force. He promoted air field construction at key points throughout the country [protection through mobility]. He expanded the early warning net [detection]. "This net was invaluable in warning threatened bases and cities [protection]. When the Flying Tigers were ready to fight late in 1941 it helped them to face an enemy who had overwhelming superiority in numbers."¹¹¹ Given these resources, Chennault trained his American and Chinese early warning net volunteers and airmen.

The early warning net, *jin-bao*, was the most important part of Chennault's operation. "It was a chewing-gum and bailing-wire operation, a masterpiece of jerry-rigged engineering."¹¹² Telephones and radios were the mechanical parts of the net, the Chinese people were the eyes, ears, and the living heart of the net. The detection net eventually fanned out 270 degrees from Kunming extending over most of China and the occupied provinces (an area greater than half of the US).¹¹³ Occasionally, the observation posts even overwatched Japanese airfields. Some posts used sundials to determine time and direction. Reports were often based upon sound alone and it was not unusual when the reports contained "face saving" modulation.¹¹⁴ The early warning net began in July of 1937 using the concentric circles Chennault envisioned in Defensive Pursuit. The observers were initially stationed at 100, 200, and 300 kilometer intervals.¹¹⁵ The reports were sent to a central command post and warning went out to the targeted cities and airfields. Chennault founded schools, teaching concepts such as: determining direction, approximating altitude, airplane identification, and time. The schools sent the observers to their posts after they mastered the topics--anytime from two to 12 months after beginning their studies.¹¹⁶

Thousands of volunteers began an extensive airfield construction plan during 1938-1939 which eventually culminated in 100 airfields. The fields were to offer Chennault's forces protection through mobility. By hand and wicker basket they built and maintained the airdromes "to nest airplanes not yet built in Los Angeles and Buffalo factories."¹¹⁷ At Hankow, 120,000 peasants built a 4,800 foot airfield for heavy bombers in only sixty days. Sometimes the airfields were bombed even when they did not hold planes. As Japanese planes cleared the skies after a raid, the peasants grabbed their shovels, crushed rock and pushed compacting stones weighing thousands of pounds across the runway to repair it.¹¹⁸ All of the airdromes were built by hand. Four bomber

fields were built by 350,000 peasants in ninety days. Chennault may not have anticipated this level of manual labor as he theorized of the "National Resistance" and the war absorbing all the resources of the country, but China's resource was her people.

China had manpower but needed the implements of modern war for the offensive **destruction** of Japan. Chiang turned to the US for planes and other armaments. By 1940 Chiang, Chennault, and Roosevelt concluded that an American-sponsored Chinese Air Force may be the best economy of force mode to strike at the Japanese. Chiang insisted that Chennault go to Washington in the fall/winter of 1940 to argue his case alongside the China lobby and Roosevelt's "kitchen cabinet." To the chagrin of the War Department, President Roosevelt and Britain released 500 planes to China and authorized US airmen released from active duty to outfit three AVGs for fighting in China. Only one AVG arrived in the Southeast Asian theater before December 7th, 1941, when the second two AVGs and a bomber squadron were promptly recalled.¹¹⁹ Later, on July 4, 1942, the China Air Task Force (CATF) superseded the AVG. Its strength was 34 battered P-40s, most of them inherited from the AVG, and seven B-25 medium bombers. By 1943, the CATF grew to four fighter squadrons and one medium bombardment squadron--98 airplanes operating along a 5,000 mile front from Chungking and Chentgtu to the Indo-china Red River in the south, the Tibetan Plateau and the Salween River in the west, and the China Sea in the east. The unit's main base was at Kweilin, 500 miles east of the Kunming headquarters, and they worked from Hengyang, Nanning, Yunnanyi and other Chinese fields, and from Dinjan in Assam, India. On March 10, 1943, the Fourteenth Air Force superseded the CATF. The Fourteenth had an assigned strength of 142 airplanes and 2,234 men. By June of 1945, the 14th had 735 aircraft and 20,000 men, of which 15% were aircrew.¹²⁰ China received additional planes for the Chinese/American Composite Group which began operations in 1944. Now with her implements of war for Japan's **destruction**, China had to resupply and replace them.

The history of the CBI Theater is a history of supply.¹²¹ Chennault lamented, "Supply problems remained my biggest headache until the end of the war. [The Chinese] had no supply or maintenance organizations [so] I found myself deeply entangled in the labyrinth of Chinese logistics."¹²² During the high water mark of the Axis, Chennault and the Chinese Army received the equivalent in supplies to outfit less than two US infantry divisions.¹²³ This paltry supply tonnage kept fewer than 100 planes and 3.8 million man army in the war. During the eight months that CATF existed, they survived and fought with 800 tons of supplies per month.¹²⁴ In December,

1944, the Fourteenth Air Force's supplies received (14,688 tons) were "slightly more than that required by one infantry division in action. The total amount of tonnage delivered to China throughout the war could have been transported in but seventy Liberty ships had a port been available."¹²⁵ The Chinese were promised 10% of America's lend-lease but this promise was unfulfilled. American lend-lease that China received was: 1.7% in 1941, 1.5% in 1942, and 0.4% in 1943 and 1944. Aid increased greatly in 1945 but half of the aid was received after the war. China only received 3% of all lend-lease.¹²⁶

The discrepancy between what President Roosevelt and the army promised to deliver and what the army actually delivered was the largest of any theater. Once Japan occupied China's ports and the Russians focused toward Germany, China had a supply problem. Chennault was at the end of world's longest supply line. Distribution points in China terminated a 15,000-mile supply line. The supply line consisted of a 12,000-mile voyage, a 1,500-mile trip across India, a 500-mile flight across the Hump, and distribution to the far eastern bases of the Fourteenth Air Force. Dropping one ton of bombs required eighteen tons of supplies reaching an Indian port.¹²⁷ Few other campaigners had a million-gallon a year gasoline supply line, run by a 1,700-mile camel caravan, via the Old Silk Route. This route through Russian Turkestan "carried more war materials into China than the famous Burma Road."¹²⁸ Thousands of Chinese volunteers distributed the supplies that arrived at Kunming and the dispersed airfields from the camel caravans by sampan, by wicker backpack, and gin pole. Acquiring the means to implement his theory's destruction upon Japan was Chennault's greatest challenge. Again, he was forced to return to his theoretical "The Will of the People to Resist" which said that all classes of a population would directly contribute to the war. In China, millions literally "carried" on the war effort.

Chennault knew that the Burma Road was inadequate for supporting the war in China and that only a port or a large air bridge could sustain the war. He was in China before the Burma Road was opened on December 2, 1938, and when the British closed it for three months in 1940 due to Japanese political pressure.¹²⁹ Despite his (and Churchill's) reservations, the theater sunk its scarce resources into the Ledo or Stilwell and Burma Roads. The project ambitiously begun to supply an army, became an additional burden and also diverted supplies from the Fourteenth Air Force.¹³⁰ A glance at the contribution of the supply modes shows that from December 1941 to December 1945 air supplied 81% of the tonnage to the theater, the Ledo Road contributed 16.6%.

and the pipeline only 2.4%.¹³¹ About 30% of the incoming cargo on the road had to be gasoline needed for the round trip to Kunming. A round trip from Burma to Chungking required, by weight, about 50% gasoline.¹³² The gasoline backhaul requirement and the precarious road bed caused the Burma Road became a one-way viaduct. The northern terminal, Kunming, became the world's largest parking lot .

The success of the Hump route was central to any China strategy.¹³³ Depending solely upon air transport for supply had no precedent. Chennault was "confident that it could be done" as were Washington officers who surveyed the theater. Chennault's optimism was based on his 1937 ties with pilots who pioneered the route for the China National Aviation Corporation (CNAC). But a defeatist attitude permeated the command of the 10th Air Force and later the Air Transport Command until late 1944. CNAC consistently out performed the military and events were to prove that the route was viable.

Chennault tailored his operational concept, fighting doctrine, and tactical employment based upon his resources and Chinese traits. The operational concept flows from theory. Likewise, the operational concept begets tactical doctrine. "Therefore, doctrine is the end product of the process the theorist begins."¹³⁴ Chennault refined his operational concept based upon his advisory experience and the changing means (acquiring US pilots and aircraft) and his doctrine amplified his four elements of war.

He determined that he needed to protect the force, his LOC, and his most valuable asset, the Chinese population from the Japanese bombers and attacks. **Protection** could best be provided by a three step process. First, the civilians and the military must have a passive defense to shield them from the Japanese bombing and attacks. This defense consisted of deception, warnings, revetments, and air raid shelters.

Safeguarding Chennault's base and LOC is the second tier of **protection**. The AVG's first mission was to protect the Burma Road as then it was the single southern LOC into China, since the Hump route was not formalized until November, 1941. While protecting the Burma Road, Chennault was forced to split his meager AVG, sending two squadrons with 34 aircraft to protect the Chinese bases of Chungking and Kunming. After the British defeat in Burma, Chennault's LOC defense mission was greatly simplified. The Royal Air Force (UK) and eventually the 10th (US) Air Force would later assume the LOC defense mission, but only well after this mission diverted Chennault's scarce resources to protecting the theater LOC.

The third tier of **protection** was mobility. Chennault saw his only chance for survival was using mobility to both attack the Japanese and frustrate their efforts to concentrate against him. He "used every advantage of interior lines of communication" to attack the Japanese while forcing the numerically larger enemy to attack from exterior lines. Chennault wrote he used the

principle of the Confederate cavalry leaders in the War between the States applied to modern air war. With our tiny but mobile task force, we could cut the Japanese communications, destroy supplies, batter their bases, and create confusion in their rear out of all proportion to our tiny effort.¹³⁵

Chennault's forces were so small that conventional defensive tactics would have doomed them to extinction. Chennault's omniscient 1937 request for the construction of one hundred-odd airfields gave him the bases he needed to fight "this aerial shell game." He kept the Japanese guessing where his forces were, "from Burma to the Yangtze." Using a doctrine of mobility required a thorough understanding of time-distance relationships and almost perfect intelligence.

In order to destroy the Japanese across a 2,000-mile front, he had to plan with certitude. Chennault's **detection** of the Japanese came from intelligence sources such as observation reconnaissance flights, photo reconnaissance, reports from the Chinese Army, his forward air controllers, and the US Navy; but the crowning jewel of Chennault's **detection** effort was the early warning net. First begun shortly before Chennault's arrival, he quickly expanded the net's function and area, to include **protection** of the triangle from Shanghai, Hangchow, and Nanking. After a particularly destructive raid upon Kunming in which no CAF planes took off, Chennault ordered John Williams to improve the Yunnan early warning net so that it could direct fighters against the enemy.¹³⁶ This took six months. Now the operational concept of air superiority could be achieved with **interception**.

Chennault continued expanding his intelligence base to achieve **destruction** of the Japanese when two significant events occurred in 1942. First, a missionary, John Birch, escorted a downed pilot, LTC Doolittle, into Chennault's headquarters. This prompted Chennault to formalize an underground railroad to repatriate shot-down pilots and offer further **protection** to his small force. Second, William J. Donovan visited the theater and asked for Chennault's help in gathering intelligence.

Chennault's intelligence network grew slowly and quietly. More missionaries were recruited Soon Chennault's agents were dispersed throughout occupied China, along the coast and around Hankow, serving as liaison between the Chinese armies and Chennault's airmen, passing on information on subjects ranging from Japanese ship movements and troop activity to the black market.¹³⁷

With this intelligence net, and intercepted radio traffic provided by captured Japanese signallers, Chennault's force was secure and he increased his offensive effectiveness.

A thorough appreciation for and analysis of time-distance relationships were the keys to **interception**. Battling the enemy over your lines or airfields meant that the enemy had probably already dropped his bombs. The ideal was to intercept the attackers at a great distance from their target, either the airfield or front lines. Timely information from the early warning net and calculation from the net's command post provided this information. Six variables had to be known and then the net could calculate the desired point of **interception**. The variables were: 1) altitude and speed of enemy, 2) rate of climb and speed of pursuit force, 3) time for pursuit to apply effective fire, 4) time for collection of information from observers and transmission to the pursuit organization, 5) time for the pursuit to leave the ground after receipt of orders, 6) ability of pursuit to make **interception** by the shortest route.¹³⁸ Using simple algebra and updated reports from the early warning observers, the net command post could direct **interception**. The time-distance relationships were the underlying principle supporting Chennault's doctrine of mobility, too. Presently, we refer to this as acting before the enemy can detect your actions or can react to your sudden move.¹³⁹ Chennault employed mass and surprise to facilitate **destruction** of the Japanese. Chennault did not wait for command of the sky to take the war to the Japanese, rather he deflected the Japanese blows with his **detection** and **interception** while taking to the offense. He wrote, "Our only defense was a good offense."¹⁴⁰

Chennault's operational concept achieved two goals. First, he clarified and defined the China theater's end state with the approval of Chiang Kai-shek and President Roosevelt. Second, he determined the means he could use from within the theater and he gathered the means from outside the theater that he needed to support Chiang's campaign. The essentials of Chennault's security were the early warning net, deception, mobility, and a careful study of the enemy. His final task was to refine his plan and methods to defeat the Japanese.

ANALYSIS OF THE WAYS

Around the top-level conference table the war is a neat precise series of operations that come ready-made out of the planners' brief cases, figured out to the last man, round of ammunition, and can of rations. These beautiful planning pictures quickly blur in the field. When the plans go awry, as they always do in varying degrees, it is the field commander who must take over and win or lose with what he has at the moment, not what the plans eventually call for. There is a tremendous gulf between the military planners and the military operators. Both are necessary, but it has been my experience that while an operator can be a planner, the planners seldom succeed in an operational command. Some of the biggest military busts of the war can easily be traced to putting a professional planner into an operational command.

LTG Claire L. Chennault

Chennault, like many others in China, was unable to accomplish his objective. That is important, but not critical to this study. What is far more important is to note the tremendous contributions he made with the meager means available and to determine if his theory assisted in his campaign planning. From 1937 on, he believed that China's very limited internal lines of communication restricted Allied ground involvement as he relayed to BG John Magruder, US Military Mission to China.¹⁴¹

Logistics and transportation limitations were the major reasons that Chennault sought to limit American involvement to small, mobile forces offset with superior intelligence and striking power. When he finally gained his small 500-plane force in the spring of 1944 instead of late in 1941, its missions were diffused by the allied requirements. He could not mass on Japanese shipping and the mainland. He could only conduct offensive operations after providing protection for the War Department--controlled 20th Strategic Bomber Wing, protecting the Hump, supporting ground forces in Burma, and supporting the Chinese Army fighting against the Japanese INCHIGO offensive. Chennault's overly optimistic 500 plane aerial offensive was inadequate to defeat Japan; however, without the divergent objectives pressed upon Chennault, the impact upon Japan would have been even greater.¹⁴²

Since the history of the theater and its tactics were closely tied to the history of logistics, it is useful to examine how Chennault's ways improvised to adapt to his meager means.¹⁴³ The Fourteenth Air Force sent one bomber in at 200 feet to drop one bridge instead of using the Eighth Air Force's tactic of using a group with hundreds of bombs at thousands of feet to do a similar job. The Fourteenth used fighters as dive bombers to increase accuracy and borrowed General Kenney's Fifth Air Force bomber tactic of using skip-bombing against ships.

Chennault calculated that it cost half a ton of supplies per month to support an

American in theater so he worked with the "National Resistance" will of the Chinese to reduce his American overhead. The Americans "operated at about half the normal troop strength and fought on one-fourth the supplies usually allocated to an air force of its size."¹⁴⁴ Chinese troops performed almost all the service functions for the Fourteenth. Chennault initiated this relationship with the arrival of the AVG and it continued until early 1945 when his growing forces overwhelmed the Chinese resources. The theater mastered improvisation from bomb racks to bamboo auxiliary fuel tanks.¹⁴⁵ Gasoline was so critical that visiting planes flying into Chennault's headquarters at Kunming, were drained of all but the absolutely essential fuel for the return trip.

The early warning net and intelligence provided security for his theater. Young provided one example in describing the early warning net around Chungking.

The warning system was excellent--probably the best in the world at the time. Spies with radios near enemy bases spotted the take-off and movements of enemy planes, telling the number and direction of flight [detection]. This, along with advice on the progress of the flights, was relayed to air defense headquarters in the threatened cities. Warnings there were given in the early stages by signal raised and lowered in high places, and then by sirens. People who could not take shelter had time to disperse in the countryside [protection]. The morale in Chungking was high, despite losses, at this stage of air bombardment.¹⁴⁶

Even without the means to offensively fight, Chennault had taken actions to preserve his fighting forces and his most important asset--the Chinese people.

ADVISOR (*Circa* 1 June, 1937 -- 31 July, 1941)

The Sino-Japanese War broke out days after Chennault's arrival in Shanghai. While he went to China as a pursuit expert, his role was quickly broadened and within weekss he became Chiang's Air Force Chief of Staff. Chennault did not wait for the formalities of appointment to begin fighting. His defense of Shanghai and Nanking, cited earlier, were vintage Chennault theory which included civil and base defense from the protection plank, and the detection and interception planks of his theory. His hastily orchestrated defense with the best Chinese pilots that he, MacDonald, and Williamson could find, drove the Japanese to escorted bombing missions within a week and to night bombing within a fortnight.

Chennault's deceptive trap for the Japanese culminated in the biggest aerial battle in history up to that time, near Hankow on April 29, 1938. He coordinated for the Chinese and Russian fighters and ground crews to noisily depart the area. Chennault was sure that Japanese spies would report this withdrawal. At sunset the planes returned

at low level and landed without circling [**protection** through mobility]. The following morning the Japanese flew in for what they thought was a leisurely bombing of Hankow. After the battle, only three enemy planes returned to base while 36 were burning in the countryside [**destruction**].¹⁴⁷

Over time, Chennault needed other resources as he could not overcome the superior Japanese numbers, higher quality pilots, and equipment. After a fair accounting of itself in late 1937 and early 1938 the CAF had less than 20 obsolete aircraft and fewer capable pilots. Seven Russian fighter and five bomber squadrons provided most of China's air power until their withdrawal to the Russian western front.

His first actions after the exodus and establishing his headquarters at Kunming was emplacing an early warning [**detection**] net over a land mass larger than half of the United States. He applied his educator's mettle to reduce each task to its simplest element. He spent months with trainers and interpreters supervising training the Chinese to establish the multi-concentric net and command posts. The net saved tens of thousands of lives [**protection**] buying precious minutes for the civilian urban dwellers and labors to seek air raid shelters before the Japanese bombers, often using incendiaries, struck. The net saved precious airplanes and dozens of airmen's lives, also. Maps were general and very inaccurate.¹⁴⁸ When pilots became lost, they were instructed to circle several times. Inevitably the radio silence would soon break giving them their location and the location of the nearest base.

Chennault's early warning net also provided him with an intelligence net that spanned occupied and unoccupied China [**detection**]. The mainland was so massive that it was impossible for the Japanese Army to garrison the entire country. Early warning outposts that had been overlooked by the invaders remained in place and continued their observation. Other early warning posts infiltrated behind the Japanese lines and operated with great success.

The early warning net was the heart of the downed pilot recovery effort. Chennault initiated the "blood chit;" pilots wore painted cloth stitched on their jackets, with directions for repatriation and reward written in Burmese and Chinese. Chennault's **protection** doctrine minimized casualties and aircraft losses, and maximized downed pilot recoveries.

Likewise, Chennault trained the CAF and coordinated combat actions with the Russian squadrons for **protection** of their bases, support to the army, and protection Chungking. The former headmaster established classes that he would repeat later for the AVG. Later as his missions and resources expanded he had to delegate trusted

subordinates to train the new pilots of the CATF and the Fourteenth Air Force. ¹⁴⁹

After training 11 classes of CAF pilots, Chennault remained frustrated and felt that there was more he could do to contribute to the war against Japanese aggression. In October of 1940, Chiang sent him to Washington to plead China's case to receive the weapons of war (means) to include 500 planes and Americans to fly them.

AVG (1 August, 1941 -- 4 July, 1942)

The sudden Japanese offensive in Burma threatened Chiang's and Chennault's LOC (**protection**) if the offensive was not stopped before reaching Dinjau, India, the northwestern terminus of the Hump. The Japanese were advancing on two fronts. The Allied air forces coordinated attacks with ground forces withdrawing toward India. The Japanese were halted at the Irrawaddy River. Chennault felt that bombers were so indispensable to the China theater that he "created" bombers from the AVG's P-40 pursuit planes.¹⁵⁰ His mechanics fashioned homemade bomb racks and pilots dropped combinations of homemade, Chinese, and Russian bombs. The bombings' **destruction** cost the Japanese dozens of planes on the ground and convinced the Japanese Army to stop at the Swaleen Gorge in January of 1942, and not pursue the retreating Chinese into Yunnan Province.

By the time of the Burma debacle, Chennault already had moved his base of operation and two squadrons northeast to Kunming. The loss of the Burma Road prompted Chiang to order Chennault to ensure he offered **protection** over the Hump route until the 10th Air Force was in position to assume the mission. Chennault accomplished this mission in his usual offensive economy-of-force manner. His plan was to operate his air force deep in China, using the country's depth as a **protection**. With limited capability to defeat the Japanese in conventional battle, Chennault attacked the Japanese when intelligence and logistics permitted it.

A decade earlier Chennault wrote that a radio-equipped early warning **detection** net could guide pursuit **interception** of a bomber attack. On January 17, 1942, it came together over Mengzi, 75 miles from the Indo-china border.¹⁵¹ Four AVG planes destroyed a flight of bombers which had launched their attack from Hanoi. Chennault continued moving his force around in the Chinese interior and attacking the Japanese.

It was hard to keep the airdromes and airplane movements secret. Chennault used this to enhance his **protection** through a simple but elaborate deception which caused the Japanese to overestimate his strength by a factor of ten. With the stroke of a paint brush Chennault's planes changed propeller spinner colors, fin flashes, and fuselage numbers. The paint brush, the wooden and canvas decoy (complete with a little

gasoline to burn if the decoy were attacked), the mobility of the force to marshal and then always attack from a different direction, had the Japanese convinced that they were fighting a force of equal strength to themselves. The application of this **protection** theory was clearly demonstrated during the bomb-free summer over Chungking.

In the spring of 1942 Chiang directed Chennault "to permit no bomb to fall in the city [Chungking] during the summer of 1942."¹⁵² Chennault defended the city with two squadrons of canvas dummies and two to three P-40s while he offensively sought the **destruction** of the Japanese throughout eastern and southern China. By summer's end no bombs had fallen on Chungking and more than 100 Japanese planes were destroyed.

By the time the AVG faded into the history books they had lost one pilot for every 17 Japanese airmen killed. The "Foreign Legion of the Sky's" service cost the Chinese government \$3,000,000. In return, the Flying Tigers and the Allies had stymied the Japanese offensive into eastern India and eastern China, blunted the Japanese aerial offensive, and given Chungking its first bombless summer in four years.¹⁵³

CHINA AIR TASK FORCE (5 July, 1942 -- 9 March, 1943)

Chennault's resources to fight with the CATF were, in many ways, reduced rather than increased when compared with the AVG's means. The CATF inherited 47 worn-out planes from the AVG, but replacements in people and planes ran months behind schedule. The eight months that the CATF existed it operated on fewer tons of supplies than the weight of bombs which the Eighth Air Force dropped in one mission over Europe. "When the CATF could put thirty fighters and half a dozen bombers aloft, it felt powerful."¹⁵⁴ In December, the CATF had 34 fighters and two days of gasoline remaining. By spring, Chennault's means received through the Hump supply line were from 30 to 50 percent of his promised supplies.¹⁵⁵

Colonel Robert Scott, a transport pilot prior to assuming command of 23d Fighter Group, discovered that in addition to the Transport command lacking the will for the Hump mission, the priority for China's supplies was set by a far-off staff officer and not by those fighting in China. After dumping a plane load of worthless paper money into the jungle, Scott returned for a load of the gas and bullets that the fighters in China needed.¹⁵⁶

Chennault continued fighting for **protection** using his war of mobility. He controlled some missions through his mobile headquarters which could be set up in less than an hour after his DC-3 landed. He ordered five B-25s and three P-40s to stage

through an airfield only five minutes' flying time from the enemy lines; swarms of Chinese workmen refueled them from five-gallon cans. The planes sank a 4,000 ton freighter and started large fires which burned for three days in the dock and warehouse area. He also used this mobility when the CATF struck the important ports of Canton, China and Haiphong, Indo-china. In six days the CATF massed for 11 missions at Japanese concentrations 800 miles apart without a combat loss.¹⁵⁷ The Japanese sustained the **destruction** of 71 planes, three ships and miscellaneous dock and port damage. Thus, he continued his **destruction** of the Japanese LOCs.

Chennault's objective of striking the Japanese mainland, shipping, and lines of communication resulted from his determination of the Japanese weakness and his doctrine of mobility and **destruction**.

Aerial mining of waters around Rangoon, Moulmein, Martaban and Makpalin on the Sittang, Bangkok and Irrawaddy rivers started February 22, 1943. In March, during a series of concentrated attacks upon important railway bridges and main ports of entry, six P-40s knocked out the vital Mogaung bridge, severing rail connections with Myitkyina at the time that Japanese forces were attempting to drive north from Sumprabum toward Fort Hertz . . . by October 1943, they had destroyed almost 65 percent of Burma's rail facilities and a great amount of shipping. India- and China-based air attacks during 1943 cost the Japanese an estimated 275,000 tons of shipping and forced the enemy to rely on barges for China coastal traffic and to employ larger vessels on the open seas where Allied submarines could take heavy toll.¹⁵⁸

Yet, Chennault still did not consider that his long-planned offensive against the Japanese had begun.

14TH AIR FORCE (10 March, 1943 -- 1 August, 1945)

Chennault's early warning net continued to function almost flawlessly while the theater continually improved its capabilities. "Major Barclay P. Schoyer organized an Air-Ground Aid Section (AGAS) in November, 1942 with Army, Navy and Marine units. [I]t accounted for the rescue of 898 airmen between March, 1943 and the end of the war."¹⁵⁹ In addition to their search activities, AGAS men collected intelligence, trained hundreds of Chinese (and missionaries) in the assistance of lost American airmen, and organized the Chinese underground. The force **protection** in this theater probably out-classed any theater during the war.

During the Trident Conference Chennault proposed using a 500-plane force to defeat Japan through attacks on her shipping and mainland while the Chinese Army held the Japanese Army in China. His plan was accepted by the sovereigns, but was not

resourced in 1943. Similarly, the operational concept the combined United Kingdom-United States staffs (CCS) worked out from 1942 to 1944 was strikingly parallel to one proposed by Chennault. The execution of the CCS plan changed from its concept and now called for routing the Japanese from Burma. Chennault determined that it would take years to drive the Japanese out of Burma and China. The Burma campaign was a tactical success, but a strategic failure. In Burma, the Allies took two years to begin an offensive of even limited success. Yet, in two years the Allies regained the Solomons, the Gilberts, the Aleutians, occupied the Marshalls and Papua, landed on New Britain and were assembling for the invasion of the Admiralty Islands and Dutch New Guinea.¹⁶⁰

From the Chinese viewpoint, the Burma plan had significant risk to their position within China. They were bitter with the British for rejecting Chiang's offer of Chinese troops in 1941-42 as the British were losing the Burma Road.¹⁶¹ By now, Chiang learned that Chennault was correct -- the Chinese army could be supported by an air bridge, so sending troops south did not make sense. Numerous Chinese delays occurred in their support of the campaign to reopen the road because of the sacrifices the campaign required to east China offensives.¹⁶²

Chennault determined that shipping and LOCs were Japan's greatest operational and strategic vulnerability. In late 1943 and early 1944 Chennault was attacking Japanese shipping, railroads, depots and bases with his two B-25 squadrons.¹⁶³ By early 1944 Chennault's **destruction** in Indo-china abrogated any value the region gave to the Japanese.

Chennault's conviction was that shipping was Japan's Achilles' heel and was the key to her **destruction**. He waged his anti-shipping destruction and mining campaign throughout the eastern Chinese coast and included the river barge traffic. He wrote in response to the B-29 campaign targeting Japan's steel industry [strategic bombing campaign MATTERHORN controlled by the War Department] that the effort could be significant but not decisive by itself.¹⁶⁴ He argued that if MATTERHORN was done simultaneously with his anti-shipping campaign, then the **destruction** could be decisive.

"Chennault was more right than he knew" and the MATTERHORN planners could not have known that they had the wrong target. The 1943 Japanese steel industry was operating at a third of its capacity due to a critical shortage of ore. *"And the ore was not reaching Japan because of the Fourteenth Air Force's steady campaign against river and coastal shipping."*¹⁶⁵ Chennault's acute observations of the Japanese

vulnerabilities were dovetailing with his theoretical planks to protect one's forces, acquire timely intelligence on the enemy, then interdict, and destroy him where he is most vulnerable.

In the spring of 1944 when Chennault's offensive was logistically supported, the success of his aerial campaign precipitated the results that Stilwell predicted. Stilwell predicted that if Chennault's campaign against the Japanese LOCs was effective that the Japanese Army would strike to destroy Chennault's bases.

Chennault's ability to accurately assess the **detection** and identification parts of his theory never failed him. He discovered the build-up for and the beginning of the Japanese INCHIGO campaign in April of 1944 while the theater denied it. When the Japanese Army finally reacted to the Fourteenth's interdiction they rolled over the Chinese Army. The Japanese struck to establish a land bridge with their forces in Indochina. They were successful but underestimated the capabilities of the Fourteenth. When the Japanese stuck their heads further into China, they merely presented Chennault with greater opportunity to cut their necks as he had done during the previous summers "rice offensives."

This was demonstrated when the Fourteenth Air Force reopened the eastern China airfields of Suichwan and Kanchow. The units based there received support completely by air from Chihkiang. Delivery of two gallons of gas cost three gallons in intra-theater haul. The eastern-based attacks contributed two-thirds of the Fourteenth's success during the three months from November, 1944 through January, 1945. The planes using these bases sank 80,000 tons of enemy shipping and damaged 178,000 tons. The **destruction** included over 300 enemy planes while the US lost only 15 during the 11 weeks.¹⁶⁶ Later, Chennault moved the squadrons 130 miles further east toward Changting and continued the damaging strikes and mining operations.¹⁶⁷

A post-war statement by Lieutenant General Takahashi, the northern Japanese Army Chief of Staff is revealing: "I judge that the operations of the Fourteenth Air Force to have constituted between 60 and 75 percent of our effective opposition in China. Without the air force we could have gone anywhere we wished."¹⁶⁸ By the spring of 1945, the Japanese began to fall back on their lines established before INCHIGO.

Many of Chennault's targets were lightly defended ships, harbors, airdromes, and railroads. The Fourteenth Air Force, limited by its means and China's great distances, was never able to strike at the heart of Japanese industry and war potential. "Operations against major Japanese surface lines of communication constituted a

strategic effort, however, in the opinion of the theater command, because they influenced the course of the war in India-Burma and in the Pacific as well as in China." ¹⁶⁹

Chennault used fighters and bombers of all types against Japanese shipping. In June of 1944, radar-equipped LAB (low-altitude bombardment) Liberators had remarkable success in night attacks and in daylight attacks through the overcast. ¹⁷⁰ The LABs were coordinated with sea sweeps off the China coast with Fourteenth Air Force mining missions against the harbors of Haiphong, Canton, Hong Kong, and Shanghai. The Fourteenth continually mined the Yangtze River, targeting enemy shipping. ¹⁷¹ Mining of the approaches to Canton was the chief factor in stalling a Japanese drive north from Canton in the summer of 1944.

Chennault used US Naval resources to fight the Japanese by adding maritime **detection** stations to his early warning net, as he had espoused in his theory. He first coordinated defensive actions with Captain James McHugh (USMC), US Assistant Naval Attache since July of 1937. ¹⁷² Since that time he planned with naval officer Milton Miles, who was with Naval Group China collecting intelligence for possible landings on the Chinese coast. The Navy requested the Fourteenth's assistance with reconnaissance over the South China Sea, Strait of Formosa, the Indo-china coast, and the Philippine waters. Together, with Lieutenant Commander Sam Savage, Chennault established a joint **detection, interception** and targeting command post -- the 308th Radar Control Detachment Number 1. ¹⁷³

The only "radar" that the 308th Radar Control Cell used was in the belly of the LABs. The LABs conducted reconnaissance patrols for **detection** of Japanese shipping and would either attack it or hand off the Japanese convoys to submarines in the South China Sea. The cooperation worked so well that the LABs were able to hand off damaged ships for the submarines to sink and, conversely, the submarines were able to hand off damaged ships for the more mobile Labs to sink. By April of 1945, the LABs rarely found any large merchant ships -- Japan's sea LOC was cut. The Navy was so pleased with the energetic cooperation and results that they awarded Chennault the Navy's Distinguished Service Medal.

With a million-man Japanese army still in China and the Americans enjoying success in the Pacific, the War Department eased its logistical burden by basing the strategic bombers in Saipan. ¹⁷⁴ The Joint Chiefs maintained control of the B-29 Super Fortresses. It was unimportant who controlled their targeting, but what was done with the bombers was important. Within months the bombers had made 80 Japanese cities

unfit for human habitation and completed the destruction that Chennault foretold in the 1930's and with his campaign plans of 1940 and 1942.

CONCLUSION AND IMPLICATIONS

The stone which you builders rejected has become the capstone.

Acts 4 : 11

CONCLUSION

This paper reviewed Chennault's education, academic experience, and physical practicum with military history and theory. Over the course of a full career Chennault developed a theory of war, operational concept and tactical doctrine which he argued, committed to paper, and defended to the detriment of his career. He finely tuned these thoughts in light of his experiences advising the Chinese during the Sino-Japanese War from 1937 to 1940. Ultimately his theory assisted the US with prosecution of the Second World War and the uncertainty thereafter.

Chennault foresaw the defeat of Japan because of his ability to transition from the theoretical to the practical employment of forces. His grounding in a tactical foundation--while questioning the utility of dogfighting at Brooks Field and experiencing the vulnerability of Ford Island, Hawaii--drove him to "push the envelope" to extract the most from the air arm. His theories were firmly based upon the historical precedent of centuries of warfare. When he vociferously argued for a balanced air arm and professed uncertainty as to whether the air arm alone could defeat a warring nation, he acknowledged that success in war was not a function of geographic medium (air, sea, or ground), but of broader issues such as will and morale.

Chennault's campaign plan, within his ability to control logistics, produced a campaign in line with his theory. Chennault's theory of war aided his campaign planning and execution in the CBI Theater during the Second World War. What is important to Chennault's theory is that it offered a balanced approach that, in execution, was instrumental in Japan's defeat. Sufficient evidence exists to show that Japan was well on the road to defeat based upon the denial of her sea lines of communication and attacks on her ability to wage war. This was Chennault's theory of war. The use of nuclear weapons only hastened the inevitable victory.

IMPLICATIONS

Chennault's performance in the CBI theater is important for two reasons. First, Chennault's example illustrates that a historical and tactical foundation is paramount for military officers. Lacking his academician's acumen, historical foundation, and tactical background, it is difficult to imagine that Chennault could have both recognized the

logical flaws in the Douhet theory and offered a logical, practical alternative. Through letters from his former wingmen, Chennault was mentally assessing China's predicament before his medical retirement in 1937. His experience in China, advising and fighting during 1937-1938, nurtured the operational adaption of his theory which he had penned earlier the mid-1930's.

The instructiveness from Chennault's experience is that without a foundation in history and theory, modern soldiers may not be able to adapt to changing ways of warfare.¹⁷⁵ Numerous officers exhibited the capability to change their methods and techniques over the short term; however, these were not in response to warfare's theoretical changes, but rather to technological minutiae from bomber and air arm development. The ability to adapt theory is core to restructure means and ways for the campaign.

Second, Chennault's larger donation to military professionals is his theory. We still operate within his vision. Numerous historians credit Chennault as the author of guerrilla and clandestine aerial warfare, the concept of an air bridge (which later sustained besieged Berlin), and air superiority. While his theory includes these elements, the theory is expansible to broader methods of war.

His appreciation of time-distance factors is as useful in today's space-based warfare and heightened reliance upon early **detection** and aerial warfare as it was sixty years ago. Chennault recognized that defensive pursuit was grounded in timely intelligence and timely orders. His **detection** element was the key to defensive pursuit or air superiority. It is inconceivable for us now to think of fighting without striving for command of the air.

Chennault's identification of the enemy's strategic and operational centers of gravity offers present campaign planners models for campaign design. He progressed far beyond the 18th and 19th century paradigm of occupying the enemy's capital. He correctly viewed war as the struggle of nations and societies. To win, the victor had to reduce the enemy's accumulation and projection of power to irrelevancy. Chennault's use of a small, highly trained force to extract victory all out of proportion to the force's small size is his legacy.

The Airborne Warning and Control System (AWACS), the Defense Early Warning (DEW) Line, and the Joint Targeting Board (JTB) are all descendants of Chennault's theory.¹⁷⁶ "Old Leatherface" would champion the Strategic Defense Initiative (SDI) to enhance early warning and protect America. While our current detection is largely technological and space-based, if Chennault were here, he would not

forget the moral element of war. He would support our better knowing and accepting of our neighbors, and not judging them.

Chennault's theory of war is as pertinent today as it was when he formulated it using biplanes, flying through the air with the greatest of ease as the leader of The Flying Trapeze. His lessons for the future are grounded in the present:

Mistakes made in peacetime constitute the greatest danger to our national defense. It is in time of peace that we must develop our technical equipment and train our personnel. We cannot do these things after the beginning of hostilities nor can we suddenly shift from one type of vital equipment to another after the fighting starts. Our leaders in peacetime should have sufficient imagination, vision, and experience to direct technical development and personnel training upon sound lines.¹⁷⁷

ENDNOTES

1. Young, Arthur N., China and the Helping Hand: 1937-1945, Cambridge, Harvard University Press (1963): 16-18 and 59-60. Germany resisted Japan's first requests for her departure from China in 1937. By May 25, 1938, the German Ambassador, under the guise of neutrality announced that the advisors were leaving and they departed July Fifth. "[General] Von Falkenhausen . . . issued a statement that he was convinced of China's ultimate victory. His views were based on the idea that Japanese forces would be mired down in China's vast spaces."
2. Bauer, Boyd Heber, General Claire Lee Chennault and China, 1937-1958 a Study of Chennault, his Relationship with China, and Selected Issues in Sino-American Relations, Washington, American University (1973): 94-97, and Byrd, Martha, "Chennault and China, 1937-1945," Valley Forge Journal, Valley Forge, PA, Valley Forge Historical Society (June, 1989): 251.
3. Holloway, Bruce K. "The Flying Tigers...Challenge-Sacrifice-Victory," Air Force Magazine, Washington, Air Force Association (Nov 1967): 96-99.
4. Feuer, A. B., General Chennault's Secret Weapon: The B-24 in China, Westport, CT, Praeger Publishers (1992): 163. And see Chennault, Claire Lee, Way of a Fighter: The Memoirs of Claire Lee Chennault, New York, Putnam (1949): 247-248: (cited hereafter as, Fighter.
5. Holloway, Flying Tigers, 99. This record accounts for the American Volunteer Group's victories and those of its successor, the 23d Fighter Group.
6. Bauer, 90. Chennault's units only lost one pilot or crewman for every four planes shot down or ditched.
7. Ford, Daniel, Flying Tigers: Claire Chennault and the American Volunteer Group, Washington, Smithsonian Institution Press (1991): 381. Ford's work is a meticulous study of the AVG. He uses vast US sources and the recently published monographs from the Japanese Defense Forces to compare and contrast the AVG's war from both points of view. Not surprisingly Ford found that the Japanese records are far less complete than the American. This is logical since Japan lost the war and sustained severe losses in some Sentai (squadrons) such as the 64th which sustained 400% losses and the 77 Sentai which was issued rifles and put in the line as infantry after losing all their planes in 1942. Yet, Ford found that both sides over estimated the damage they inflicted upon the enemy and, rather accurately, estimated their own losses. Again this is logical since when losses are sustained, there are personnel effects to care for and letters of condolence to write. During the adrenalin rush of combat it is difficult to objectively ascertain the level of destruction visited upon an often fleeting enemy.
8. Bauer, 142.
9. Ford, 107. Chennault was denied his requests for recall to active duty in the winters of 1938 (Fighter, 73), 1939 and the fall of 1940. He felt that he had experience and knowledge to offer the Army that he gained while fighting the Japanese in China. By 1942, he viewed his recall as mixed blessing. He equated his recall to the shackling of his freedom of action, but he hoped that the official recognition would open the often promised but seldom delivered supply bins to he and Chiang Kai-shek.

10. Byrd, Martha. Chennault: Giving Wings to the Tiger, Tuscaloosa, University of Alabama Press (1987): xi: cited hereafter as, Byrd.
11. Scott, Robert Lee, Jr., Flying Tiger: Chennault of China, Garden City, NY, Doubleday and Company (1959): 273.
12. Fighter, 11.
13. Chennault, Claire Lee, "The Role of Defensive Pursuit," Coast Artillery Journal, Part I, (Nov-Dec 1933) Part II (Jan-Feb 1934) Part III (Mar-Apr 1934) 413: cited hereafter as, Role of Defensive Pursuit.
14. Fighter, 28-31. and Byrd, 60-61. For unfavorable views of Chennault see Tuchman, Barbara, W., Stilwell and the American Experience in China, 1911-1945, New York, Macmillan, 1970, and Shepard, John E. Jr., "Warriors and Politics: "The Bitter Lesson of Stilwell in China," Parameters, Carlisle, PA, US Army War College, March 1989.
15. Fighter, 45.
16. Byrd, xi-xiii.
17. Smith, William J. Jr., "Claire Lee Chennault: The Louisiana Years," Louisiana History, Lafayette, LA, Louisiana Historical Association (Jan 1988): 51, and Bauer, 32, and see Fighter, 5-6.
18. Smith, 52-54. And see Fighter, 7. CPT H. H. Salmon, Jr. wrote on Chennault's first rejection to flight school, "Applicant does not possess necessary qualifications for a successful aviator." Fighter, 6-8. 'Pursuit' (as in to pursue the observer) was the universal airmen's and US Army Air Corps' precursor to 'fighter'. The term pursuit fell out of use prior to World War II by the British. Ford, 347. The US adopted the term fighter in May, 1942, but planes kept their 'P' designation until postwar.
19. Chennault, Anna, Chennault and the Flying Tigers, New York, Eriksson (1963): 30-31, and see Fighter, 17.
20. Fighter, 15.
21. Bauer, 47, and Chennault, A., 32-35. The OEA of 1924 virtually banned Japanese from America.
22. Fighter, 16-17. Chennault credits Billy Mitchell with the idea of using paratroopers. But it appears that Chennault, Benjamin Chidlaw, and Sergeant Nichols were the first to polish the theory to workable techniques in the summer of 1928. Using several two seater de Havillands and a Ford trimotor, Chennault led a flight over the objective where, "the troopers bailed out, and ammunition, machine guns, water, and food were parachuted . . . so they fell inside the circle of paratroopers on the ground." The infantry opened fire less a minute after landing. Army Chief of Staff Major General Charles P. Summerall walked away before a demonstration finished muttering, "Some more of this damned aviation nonsense." A few weeks later, a Russian Army delegation watched Chennault's paratroopers and offered to meet 1LT Chennault's, "exorbitant

terms-a five year contract and \$1000 a month [in gold], plus expenses, rank of a colonel, and the right to fly any plane in the Red Air Force. The Russians wired back, 'When can you leave?'" Chennault stalled the Russians, hoping that the US would recognize the importance of air power. Months after the Summerall demonstration, the War Department wired Brooks Field to, "stop that parachute nonsense before somebody is hurt."

23. Fighter, 21.

24. Byrd, 41-45, and see Smith, 61.

25. Douhet, Giulio, The Command of the Air, Book One: "The Command of the Air," Book Two: "The Probable Aspects of the War of the Future," Book Three: "Recapitulation," Book Four: "The War of 19 __," Washington, US Air Force History Office (1983): 293-394.

26. Byrd, 53-55. The maneuvers featured a sea-borne invading force and a defending force. The controversy was that the defenders were not allowed to attack the invaders at sea, on the beach, or enroute to the defender's frontal defensive positions.

27. Smith, 59. The bomber generals controlled the Air Corps, "in the same manner that the 'battleship admirals' controlled the Navy."

28. Role of Defensive Pursuit, Part I, 413.

29. Finney, Robert, History of the Air Corps Tactical School, US Air Force Historical Studies: No. 100, Maxwell Air Force Base, Air University (1955): 38-39, and see Fighter, 20. "Doldrums" was General H. H. Arnold's terminology in an admission to West Point cadets in October, 1941.

30. Byrd, 63-64. And see Ford, 18-19. This was Chennault's second involuntary release from service, the first was in 1919. His rigorous schedule of flying with The Flying Trapeze, conducting classes, arguing the merits of airpower and pursuit, and writing late into the night for five years without taking leave, aggravated his bronchitis, low blood pressure, and physical exhaustion. His discharge stated he was "incapacitated for active service on account of disability."

31. Fighter, 36.

32. Bauer, 52. It took five campaigns from 1930 to 1935 for the Nationalists to send Mao's communists on their 6,000 long march into the interior of the country.

33. Young, 26.

34. Young, 59-60, and see Byrd, 81.

35. Young, 54, and see Byrd, 84-85.

36. Young 125-126. This advisory effort allowed the Russians to test German concepts, training, and weapons, and observe the Chinese method of transplanting industries to the country's interior.

37. Bauer, 49.
38. Cornelius, Wanda, and Thayne Short. Ding Hoa: America's Air War in China 1937 - 1945, Gretna, LA, Pelican Publishing (1980): 82. The headwaters of the Yangtze River in the Swechwan basin form a natural barrier that no invader penetrated in over 4,000 years. Even the Monguls bypassed this area. Byrd, 83. In 1935 Chiang conducted reconnaissance in the Swechwan, Kweichow, and Yunnan provinces to plan his defense and eventual defeat over Japan. Also see Haugland, Vern, The AAF Against Japan, New York, Harper and Brothers (1948): 193-194.
39. Spence, Jonathan, To Change China: Western Advisers in China 1620 - 1960, Boston, Little, Brown and Company (1969): 230. and Schaller, Michael, The US Crusade in China, 1938-1945, New York, Columbia University Press (1979): 104. Chiang only immediately controlled 30 divisions. The control of the other 270 odd divisions were dispersed among the twelve warlords. A common method of control was to withhold and ration food, so that often the army was captive to hunger and was little more than a rabble. Chiang's German trained professional forces were destroyed by the end of 1938. Throughout the war Chiang usually kept his better units opposite the communists, and not in the line against the Japanese.
40. Ford, 19-20, and see Young, 58. "In the fall of 1937 Mao gave secret instructions that, "Our fixed policy should be 70% expansion, 20% dealing with the Kuomintang, and 10% resisting Japan."
41. Schaller, 39, and see Spence, 234. Chiang "employed the hallowed Chinese tradition of 'using the barbarians to fight the barbarians' --in this case the Americans to fight the Japanese."
42. Fighter, 32-33.
43. Fighter, 33.
44. Fighter, 37, 40, and 55. And see Bauer, 66.
45. Young, 17, and Fighter, 40.
46. Byrd, 81.
47. Ford, 35.
48. Haugland, 193.
49. Young, 116.
50. Bauer, 53-57. The Open Door Notes date from the turn of the century.
51. Schaller, 107, and Young, 213. Madame Chaing Kai-shek restated the Chinese political position on October 10, 1941. "We feel that we have earned equality with the other democracies, but we do not want it granted to us in charity We have an indispensable right to be consulted and to make our voice heard when others deliberate about Asia and the Pacific. We are the senior nation in the stand against aggression. therefore we ought not to be treated as a junior in the common councils of the anti-aggression nations We cannot rest secure until you unreservedly recognize our right

to take our full share of responsibility in planning a world order that will prevent future aggression."

52. Spence, 247.

53. Young, 147. The second AVG was stranded in Australia when recalled. The third AVG and the bomber squadron were still in the US when they were recalled to active duty on December, 8, 1941.

54. Byrd, 173-179. The War Department and the Army were always strongly opposed to Chennault's plan. However, Naval Secretary, Frank Knox strongly supported Chennault's plan from 1940 and throughout the war.

55. Kohn, Richard H. and Joseph P. Harahan, eds, Air Superiority in World War II and Korea, Washington, US Air Force History Office (1983): 46, and see Ford, 47.

56. Greer, Thomas, H., The Development of Air Doctrine in the Army Air Arm, 1917-1941, US Air Force Special Studies, Washington, Office of Air Force History, U.S. Air Force (1985): 16-43.

57. Young, 139. Chungking was heavily bombed in the mid 1930's and reported 268 raids in from 1939 to 1941.

58. Lawrence, T. E., Seven Pillars of Wisdom, New York, Penguin (1967): 232.

59. Fighter, 214-215.

60. Chennault, Claire Lee, "Some Facts About Bombardment Aviation," Infantry Journal (Sep-Oct 1935) and Coast Artillery Journal (Sep-Oct 1935): 329; cited hereafter as Some Facts About Bombardment.

61. Chennault, Claire Lee, "Pursuit versus Bombardment," National Aeronautics Association Magazine (Dec, 1936): 19. Italics are from the original. Cited hereafter as Pursuit Vs Bombardment.

62. Role of Defensive Pursuit, Part I, 411.

63. Role of Defensive Pursuit, Part I, 411-412.

64. Role of Defensive Pursuit, Part I, 411-412.

65. Role of Defensive Pursuit, Part I, 413. The concept of aerial occupation is postulated most recently by Col Warden in his book and lectures. It is a useful concept in that the idea of aerial occupation is not merely theoretical trappings as was Douhet's invincible bomber theory, but that Warden's and Chennault's thoughts are grounded in the foundations of theory -- historical events that actually occurred.

66. Chennault, Claire Lee, "Pursuit in Cooperation with Antiaircraft Artillery," Coast Artillery Journal (Nov-Dec, 1935): 419, cited hereafter as Pursuit in Cooperation. Also see Role of Defensive Pursuit, Part II, 11.

67. Role of Defensive Pursuit, Part I, 413.

68. Some Facts About Bombardment, 329. Italics are from the original.
69. Role of Defensive Pursuit, Part I, 416. Italics are from the original.
70. Chennault, Claire Lee, "Special Support for Bombardment," US Air Services (Jan, 1934): 18, cited hereafter as Special Support for Bombardment.
71. Role of Defensive Pursuit, Part II, 11.
72. Pursuit Vs Bombardment, 21, and Some Facts About Bombardment, 323 and 329.
73. Role of Defensive Pursuit, Part I, 415, and Part II, 7 and 11.
74. Byrd, 155.
75. White, T. H., "China Air Task Force: Chennault's Fliers Set an Incredible Pace for American Airpower," Life (12 Apr, 1943): 77.
76. Chennault, A., 206. Chennault advocated defending, "in the same way Scipio Africanus defended Rome. when Hannibal was at its very gates. Scipio struck at Carthage, and the Carthaginians, by necessity, had to call Hannibal and his Army back to Africa to defend Carthage." On other instances he used the mobility of the Confederate Cavalry leaders as his historical basis for protection through mobility.
77. Chennault, Claire Lee, "Fighting for Observation," Infantry Journal, May-June 1936, and Coast Artillery Journal (May-June 1936): 163 and 167, cited hereafter as Fighting for Observation. This article synthesizes the air arm from both the British and German perspectives, and covers British doctrinal lessons from the first battle of the Somme, June-December, 1916. Chennault used sources from both armies, including letters from Generals von Below, Trenchard, LTC Thomsen, and Sir Douglas Haig, and General von Hoepfner's Deutschlands Krieg in der Luft (Germany's War in the Air). Trenchard and Haig concluded that the correct proportion of fighting squadrons to artillery (observation) squadrons was 2:1. The determination of the necessity of aerial observation is from the British "Manual for the Employment of Air Forces with The Army In The Field, 1932." For an in-depth discussion, see Yoshino.
78. Role of Defensive Pursuit, Part I, 416. and Part II, 8, 11.
79. Pursuit in Cooperation, 421-423, and Role of Defensive Pursuit, Part II, 8-10.
80. Role of Defensive Pursuit, Part I, 415.
81. Fighter, 22-24. After Air Corps maneuvers of December, 1931 where fighters did not intercept the bombers in two weeks, the official umpire Major General Walter Frank concluded, "due to increased speeds and limitless space it is impossible for fighters to intercept bombers and therefore it is inconsistent with the employment of air force to develop fighters." LTC 'Hap' Arnold proselytized the same conclusion after holding similar exercises in the Pacific. Another exercise was held in 1933 near Fort Knox. The fighters intercepted the bombers. This prompted the bomber crews to petition for a change of the unfair conditions before the exercise could continue. Based upon the experiences of these maneuvers, Chennault penned the The Role of Defensive Pursuit. The article defined the "principles and factors involved in the employment of defensive aircraft--whether single-seater fighters or modern jet-or rocket-propelled missiles."

82. Role of Defensive Pursuit, Part I, 416.
83. Role of Defensive Pursuit, Part III, 90-91.
84. Role of Defensive Pursuit, Part III, 91. Italics are from the original.
85. Role of Defensive Pursuit, Part I, 414-415.
86. Role of Defensive Pursuit, Part I, 416.
87. Some Facts About Bombardment, 323.
88. Role of Defensive Pursuit, Part I, 414.
89. Role of Defensive Pursuit, Part I, 414.
90. Special Support for Bombardment, 21. Pursuit zealots pressed for a special pursuit plane for bomber escort. Chennault labeled the enterprise as too full of 'ifs' and wrote that "the weight of experience and of logic is all against the special support airplane." He continued to press for a balanced approach without yielding to over-specialization.
91. Some Facts About Bombardment, 323.
92. Chennault, A., 79.
93. Byrd, 79.
94. Fighter, 96-97. Twice Chennault penned his strategy for use of American forces in China, first in the fall of 1940 and then to Wendell Wilkie, President Roosevelt's visiting emissary, in the fall of 1942. The documents are fascinating reading for their clarity and singleness of purpose, even though in hindsight, they were overly optimistic at what could be accomplished with the means requested. The first document and Chennault's arguments prompted the President to found the AVG and the second document and supporting arguments prompted both the President and the British Prime Minister to support Chennault's China strategy at the Trident Conference.
95. Byrd, 190, and see Byrd, 173-179, for analysis of Chennault's plans. See Chennault, A., 203-208, for Chennault's reprinted 1942 letter to Roosevelt (Wilkie). And see United States Strategic Bombing Survey, Air Operations in China, Burma, India World War II, Washington, Military Analysis Division (1947): 60-61, 70: cited hereafter as Strategic Bombing Survey.
96. Strategic Bombing Survey, 60.
97. Strategic Bombing Survey, 60.
98. Schaller, 88-91. In frustration Churchill complained to his insiders that the US was using China as a, "fagot vote on the side of the United States in an attempt to liquidate the British overseas Empire." And see Haugland, 272.
99. Strategic Bombing Survey, 2-3, 58. Evidence abounds that the War Department exiled her misfits to the CBI theater. An example of the misfits were washed-out fighter

pilots who were trained as transport pilots, then upgraded to 'fighter pilot' and sent into China. More than 50% of the pilots sent to fly the Hump had no multi-engine experience.

100. Bauer, 100. The same frustrated staff officer wrote that the wiring diagram should not be done on paper but had to be done on a three dimensional frame. And see Strategic Bombing Survey, 8.

101. Schaller, 119.

102. Haugland, 272, 293.

103. Haugland, 288.

104. Bauer, 94-99.

105. Scott, 184-186.

106. Fighter, 76-77.

107. Byrd, 156.

108. Fighter, 34, and 53.

109. Byrd, Chennault in China, 247-248.

110. Fighter, 48-54.

111. Young, 55.

112. Byrd, Chennault in China, 247, and Scott, 85.

113. Strategic Bombing Survey, 96.

114. Holloway, 98.

115. Scott, 84.

116. Scott, 85-86.

117. Fighter, 81.

118. Byrd, 158.

119. Ford, 42-96. It appears a futile exercise to ascertain ownership of the idea of American pilots for China. President Roosevelt, Chiang, and Chennault can all claim ownership to the idea as early as 1938. But it remains likely that the idea was germinated by Chennault himself. He had a long history of germinating ideas, not caring who received credit for the thought but more importantly, conveniently being around to exploit the new method.

120. Haugland, 202 and 208.

121. Byrd, 267.

122. Fighter, 77.
123. Strategic Bombing Survey, 57-58.
124. Byrd, 158.
125. Byrd, 267.
126. Bauer, 95-97. Bauer discovered from Milton Miles that China received no lend-lease until June, 1944. Further, he quotes General Wedemeyer, US Theater Commander beginning October, 1944, that China had only received a "trickle of aid." Wedemeyer recalled that China had been fighting for over seven years when France had fallen in six weeks. And see, Young, 350.
127. Chennault, A., 221.
128. Young, 51, and 127. And see, Fighter, 62.
129. Young, 51-52, and 110-115. Young details the difficulties of opening this ancient trade route to modern traffic. He correctly labels this "an epic affair" as construction used "hundreds of thousands of men, women, and children toiling with simple tools, moving dirt and rock in baskets carried on poles. Shortly afterward [the opening of the road] Ambassador Johnson traveled the road, with his naval attache' Major James McHugh, USMC. They felt that the difficulties of making the road an effective route for heavy traffic were enormous." And see, Spence, 246. Road workers "frequently found themselves cut off from the rear by landslides and washouts. Cargo planes dropped supplies to them initially as an emergency measure, but as the distance from the Ledo supply base increased, reliance upon air supply became more and more an accepted practice. Engineers agreed that the road could not have been completed by the end of the war if it had had to depend upon its own carrying capacity."
130. Strategic Bombing Survey, 40.
131. Haugland, 293.
132. Young, 117.
133. Byrd, 157-158, and see Strategic Bombing Survey, 41-42.
134. Moores, 18.
135. Fighter, 185.
136. Ford, 41, and see Byrd, 72.
137. Byrd, 216-217.
138. Role of Defensive Pursuit, II, 8.
139. United States Army, Field Manual 100-5. Operations, Washington, DC, Department of the Army (1986): 30-31.

140. Fighter, 185.
141. Byrd, 227.
142. Byrd, 207.
143. Fighter, 237-238.
144. Fighter, 237-238.
145. Samson, Jack, Chennault, New York, Doubleday (1987): 170, and see Holloway, Bruce K. "The P-40," Aerospace Historian, Manhattan, KS, Air Force Historical Foundation (Fall 1978): 137. The bamboo tanks were held together with fish glue and most tanks had a service life of one mission before they would severely leak. Also see Byrd, 228.
146. Young, 139-140.
147. Young, 54-55.
148. Belden, Jack, "Chennault Fights to Hold the China Front," Life (10 Aug 1942): 77, and see Scott, 86.
149. Bond, Charles R., A Flying Tiger's Diary, College Station, Texas A & M University Press (1984): 43-51, and see Ford, 77-80. The classes were held in three parts. First, Chennault familiarized pilots with their fighter. Second, he held a 72 hour tactics class on a chalkboard. Third, pilots spent up to 60 hours flying advanced teamwork tactics. Chennault would coach them over the radio from the ground. (Later, Chennault taught his airmen to exploit the strengths of their heavily armored P-40s by using team tactics and their superior diving speed and firepower, in order to turn the Japanese pilot's excellent, but dogmatic, flight discipline against them.) He learned as an instructor at Brooks Field that soldiers must be trained to their jobs before committed against the enemy. His observations of the Italian trained Chinese pilots confirmed this belief. The training sessions were not merely an old schoolmaster philosophizing, but the product of a carefully designed curriculum which included captured and translated Japanese manuals, distillations of Chennault's experience flying a recovered Japanese Nate (fighter), and the very first hand experiences that only a fighter pilot could have from aerial combat with the Japanese. The rumor persists that from 1937 to 1938 Chennault shot down 40 Japanese aircraft. Chennault denied that he engaged in aerial combat as he was very sensitive of being labeled a mercenary. However, his biographers and several general officers believe that Chennault was America's greatest ace.
150. Samson, 140-141, and see White, 76. They recorded that if the mechanics could patch all the holes in them that Chennault would have used his P-40s for submarines. This versatility also had the practical benefit that now Chennault could employ the offensive power of bombardment without having to maintain the large, gas-consuming bombers.
151. Ford, 176-180.
152. Chennault, Claire Lee, C. V. Glines, ed., "Individualism: That Controversial Leadership Trait," Air Force Magazine, Washington, Air Force Association (Nov 1967): 105-106. Chennault informed Chiang of his "defensive" method after the October, 1942.

Like the massive human effort the Chinese made to create, maintain, and supply airfields; legions of carpenters created dozens of wooden and canvas P-40 Squadrons.

153. Haugland, 198.

154. Fighter, 237, and see Byrd, 153.

155. Fighter, 191-192, and 203. Chiang opposed the Americans' shutting down of the AVG but accepted American assurances that more planes and more supplies would be provided. CATF was promised 1,986 tons of supplies per month but received 300 tons in January, 400 tons in February, and 615 tons in March. This failure was not due to supplies not being in India, but rather due to the inadequate will of the Air Transport Command at the time to deliver the supplies (Fighter, 233).

156. Scott, 122-135.

157. Fighter, 200.

158. Haugland, 207.

159. Haugland, 351.

160. Haugland, 271. "An American survey board concluded that a considerable measure of the Asiatic delay arose from Allied failure to appreciate and understand the importance of airpower and its application. Even a small additional amount of airpower, the board found, could have turned the swift Burma retreat of 1942 into an easy victory. Greater reliance upon air for a striking force and for transportation likewise could have hastened other phases of the Asiatic campaign. Even so, the undersized air units in the field accomplished so much that many of the important persons in the theater command changed their views as the war progressed, and came more and more to depend upon the air facilities available to them."

161. Young, 242-243.

162. Haugland, 294-295, and 302-303. "The Japanese military position in Burma and Thailand was weak only in its dependence upon a 4,000 mile line of communications back to Japan, and its reliance on a vulnerable rail and road system to and within Burma. Heavy bombardment of enemy shipping, ports and docks . . . forced the Japanese to turn to the railway system of Thailand in order to supply Burma. Liberators disrupted the system beyond Burma. Within 500 miles of the Burma bases, AAF and RAF medium bombers methodically knocked out key bridges and destroyed dumps and rolling stock. With enemy supplies to Burma forced to run a 2,000 mile gauntlet under Eastern Air Command air attack, there were documented instances as early as September, 1944, of Japanese troops starving to death in northern Burma." "Steady bombing of harbor facilities and shipping, and systematic aerial mining of waters, particularly in areas of Moulmein, Rangoon, Port Blair, Bangkok, Penang, Saigon and Palembang, severed one of the life lines of the Japanese empire."

163. Byrd, 212-214. From 1944 to 1945 an estimated one to two million Indo-chinese (Vietnamese) starved to death, largely because the rice-rich south was unable to move the crop north, due in part to Chennault's efforts, and in part due to the Japanese occupation.

164. Byrd, 213.

165. Byrd, 215. Italics from the original. In the first half of 1943, 2,200,000 tons of ore was the peak Japanese ore import. By the first half of 1944, their ore imports dropped to 1, 150,000 tons. At the end of 1944, their ore imports dropped to 37,000 tons per month. The B-29 attacks upon Japan's steel industry had little effect since the Fourteenth had long choked off the ore supplies. None of these successes are negated by the revelation that post-war Japanese records indicate that actual sea-going ship sinkings were only 52% of Allied claims.

166. Haugland, 301.

167. Kissick, Luther C, Guerrilla One: The 74th Fighter Squadron Behind Enemy Lines in China, 1942-1945, Manhattan, KS, Sunflower University Press (1983): 63-100. Kissick was the intelligence officer for the 74th Fighter Squadron which spent months basing and conducting attacks behind Japanese lines. His narrative of "isolated pocket operations" is fascinating and supported by the records of squadron operations. He coordinated the covert recovery of these formerly buried records when China opened up to the west after receiving formal recognition as a government in 1979. See Haugland, 301.

168. Strategic Bombing Survey, 79.

169. Haugland, 303.

170. Feuer, 36-59.

171. Haugland, 303-304.

172. Schaller, 135-136.

173. Feuer, 100-132.

174. Ford, 378.

175. Moores, 37.

176. Fighter, 23.

177. Fighter, 24.

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